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The Hunterian Oration

Delivered before the Royal College of Surgeons of England on Feb. 14th, 1913,

BY SIR RICKMAN J. GODLEE, BART., M.S. LOND., F.R.C.S. ENG., HON. M.D. DUB.,
PRESIDENT OF THE COLLEGE, ETC.

GENTLEMEN,—The picture which on these occasions hangs over the head of the orator was, as is well known, painted under peculiar circumstances. John Hunter was urged to sit to Reynolds by his friends, and principally by Sharp the engraver, who, with strange prescience, foresaw that his engraving of the portrait would prove to be his *chef d'œuvre*. But Hunter objected; he thought it almost as great a waste of time as he did only four years later, "when he fairly wished Sir Joshua and his friends at the devil when called on to take part in the funeral of this eminent artist and delightful author." Besides, he would not allow them to pay for it, and he had always more than enough use for his own money. At last, however, when he was 60 years old, he yielded. It is easy to imagine him—and with much sympathy—fuming and fidgeting in that great armchair, with the description of his specimens (on which he set great value, but which was burnt after his death by Sir Everard Home) at his side. Time after time the master tried to catch his likeness, but without success, and he was almost giving up in despair, when suddenly on Hunter's face came this rapt expression, as, with his mind fixed on other things, he ceased to be worried with his surroundings. Quick as thought the canvas was turned upside down, and between the original legs appeared this face, which even in the present cracked and faded condition of the picture has been the admiration of succeeding generations. We have been blamed for having allowed it to become so ruined, but possibly the way in which it was painted may partly account for the disaster.

Look at the picture! I have gazed at it, in season and out of season, for half a lifetime trying to guess what was the thought that calmed and possessed his restless mind. And now, at last, I seem to know. For one thought occurs again and again in all his writings, and speaks to-day from his museum to him who grasps the idea of its arrangement: *What is Life?* That mystery which baffled the intellect of the ancients and which still, *pace* Professor Schäfer, is awaiting solution. What is Life? And then I recall his strange formula, which haunts the memory like a sort of wild refrain, "*Body, Blood, and Motion!*" When the motion of the blood stops the blood dies; and then the body dies, some parts of it sooner, some later; but it dies, although there is no difference in its constitution perceptible to the senses. Truly as he observes, "mere composition of matter does not give life; for the dead body has all the composition it ever had. *Life is a property we do not understand; we can only see the necessary leading steps towards it.*"

We all admire the picture. But what would we not give to see for a moment the failures which still exist under the paint at the lower part of it? That would be a likeness of the real man such as we can only gather from hearsay.

LONDON IN THE TIME OF HUNTER.

If he were to slip out of his frame into our midst it would give us a shock to see, instead of that inspired philosopher, a sturdy, thick-set man in a brown, eighteenth century full-skirted coat and breeches, a bull neck, an underhung jaw, thin white hair that had once been red, and such an eager manner and such a sparkling eye! He could not have stepped into this theatre, for the place where our College stands was occupied by residences, except one part in the rear where there was an old theatre giving on Portugal-street. But I can imagine him crossing the open treeless square, with a pond in the middle, and making his way by Queen-street and Long Acre or the Strand to his house in Leicester Fields. He would hardly have ventured on a cross-cut through St. Giles's, for even in *my* young days it was a questionable district for respectable pedestrians. I think of the people he might have met: Dr. Johnson, blinking as he groped his way towards the Cock Tavern in Fleet-street; Fanny Burney, the novelist, bowing from her sedan chair to Edmund Burke or Wyndham; "Sir Roger" in his coach and four; Mrs. Siddons or Garrick stepping towards Drury-lane; the refined Percival Pott, his greatest rival; or Warren Hastings with his anxious face. And one might wonder that he is scarcely mentioned in the writings of Mrs. Montagu or Madame Piozzi, and that he does not seem to have mixed much with the distinguished intellectual circle whose names are still to us household words, if one did not think of the enormous amount of work which Hunter crowded into the 45 years after he left Scotland at the age of 20, with no great reputation for diligence or application. I see the strange dress of the common people, and hear the noisy rumble of the huge waggons, and the "cries of London"—that little London of 500,000 or 600,000 inhabitants, which in 1740 did not extend beyond Old-street, Queen-square, and Portman-square on the North, "Tyburn Tree" and Westminster on the West, Mile-End on the East, and was connected by two bridges only with the small borough of Southwark, enclosed by the upward loop of the river. It was like a great isolated country town, and from this square ten minutes' walk led to green fields and farms and streams and primroses and foot-pads. At Leicester-square his great yellow coach, which had crossed the drawbridge at the back of his house leading into Castle-street, would be waiting for him, and his coachman would drive off with his two bay stallions to his country house at Earl's-court. If Leicester-square was at all in the state I first remember it, it must have been a waste indeed. He would go down Coventry-street, looking much as it does now (though Regent-street did not exist), and along Piccadilly, then occupied only by the mansions of the great. Passing St. George's Hospital he would turn to the left down Bell-lane, now the Brompton-road, through fields with hedges and trees, till he reached his destination at Earl's Court, two miles from London.

Pictures of the house show it as a plain stuccoed villa, evidently built in stages, standing in grounds of moderate dimensions. It looks uninteresting, but we know that there were caves and dens of the earth, in which wild beasts were kept and from which they sometimes escaped; and coppers in which the skeleton of a giant could, if need arose, be quickly freed of its flesh. Other strange animals roamed about the park, and a stuffed crocodile hung, like a presiding saint, over the front door. Within were carried out all sorts of investigations; for it was to Earl's-court that he retired whenever he was able—too far from London for casual interrupters, but not far enough to miss calls of great importance or urgent necessity. There no doubt many of the preparations were made, if not mounted, which found their way into the Museum at Leicester-square.

HUNTER'S MUSEUM.

There is an engraving of No. 28 at the south-east corner of Leicester-square, and we can picture the front parlour and the study, and afternoon bedroom, and the print room and the sedan chair standing in the hall. He bought the lease of this house and of one at the back in Castle-street, and between them he erected a building at a cost of over £3000. On the ground floor were the great parlour for weekly meetings of his medical friends and a theatre for his lectures. Above it was the Museum lighted from the top, 52 ft. long and 28 ft. wide, with a gallery all round. The house in Castle-street was used for the different branches of human and comparative anatomy, for his printing press and publishing departments, and contained a sitting room for his students.

Let us try to think what this Museum was like and why it was formed, for it seems strange for a busy surgeon to devote a large part of his house and a very large part of his life and nearly all his fortune to the formation of an enormous anatomical museum. One could not imagine such a collection now in Harley-street or Cavendish-square.

In the first place, it must be borne in mind that Hunter was a man of phenomenal industry, whose mind was interested in everything to do with nature; to him the pursuit of natural history amounted to a passion—a passion that many of us can sympathise with, "for Nature never did betray the heart that loved her." But it must also be remembered that he possessed in an almost exaggerated degree the mania for collecting, which is also a vice not quite unknown amongst my audience, who sit on Chippendale or Empire chairs, speculating on the works of the Old Masters. Another vice he had which is shared by too many of our profession. He

only thought of money as a means for gratifying his ruling passion, and so he crowded his house with works of arts, and his museum, not only with specimens which illustrated his novel views of physiology, but with others interesting only from their rarity or beauty. He thought no more of spending £500 for the skeleton of the Irish giant, or buying a picture by Zuccarelli, or Hogarth's prints, than is now thought of paying a thumping sum for a sixteenth century bronze; and though he took the keenest interest in his patients' diseases, he looked at the "damned guinea" only as the means for enriching his collection; and so it is no wonder that he left little to his heirs besides this incomparable Museum.

But it must not be thought that this was a mere omnium gatherum of everything that came in his way—very far from that. It only needs to examine the specimens now in the Museum, all religiously distinguished by their two black figures, to appreciate that either he never put up anything except the best—which is not likely—or that, like a true collector, he eliminated all except the best; for they are nearly all of superlative excellence, and illustrate in a striking way the particular object for which they have been preserved—that is, the physiological or pathological process, not the mere isolated anatomical fact.

It is almost inconceivable when looking through Hunter's posthumous papers that out of this apparent chaos such a definite plan could emerge as the groundwork of the Museum. One is lost amongst such subjects as the sociability of man and animals, the rising of animals, air in the bowels, the mind, fossils, or parts whose uses are not known. No one can attempt to summarise such a vast variety of material, but we may gather from Clift's catalogues, which were copied from Hunter's manuscript and from Owen's careful appreciation of them, the system on which the original museum was arranged. That, however, would be going over well-trodden ground, and I will therefore, though the prospect may seem dull enough, try to explain to what extent the arrangement of our present museum follows or departs from the plan of the master.

In an advancing science like ours too slavish a worship of the past could only lead to stagnation, and therefore some modifications have been made, although it has been the wise custom of the succeeding conservators to think twice or three times before such innovations were introduced.

If Hunter were really here to-day and asked how we had occupied our stewardship, in the first place I should be dreadfully alarmed, as being in the presence of a man endowed with many of the attributes I most admire without possessing, such as intense diligence, absolute exactitude, the power of abstraction and unlimited patience, and at the same time in that of a remorseless critic of the absence of those qualities in others. However, after invoking the support of our conservator and the two curators, who would admirably defend me, I should invite him to walk through our Museum. But first I should tell him that his collection waited in its original abode till 1800, when it was taken over by the College, and that during that time it was carefully watched over, kept clean, and dusted by his trusty assistant Clift.

THE CONSERVATORS OF THE MUSEUM.

Clift, it may be observed, was born in great poverty and was sent up from Devonshire by Hunter's sister, and was engaged by him on Feb. 14th, 1792, a year and a half before his death, without fee, to write and make drawings and dissect and take part in the charge of the museum. Poor faithful Clift! He got 7*s.* a week for seven years from Matthew Baillie and Home, and kept patiently dusting and cataloguing. At last, when the Government gave £15,000 for the collection, and subsequently £12,500 in addition, and the College gave £21,000 for the building of the first museum, he was made the first conservator. He held this post till 1842, when he retired on account of ill-health, with a pension of £400 a year.

And here I should slip in the piece of information that the College has spent not less than £500,000 upon its construction and maintenance up to this time.

Clift saw the incorporation of several other museums, such as those of Blizard, Astley Cooper, Heavyside, Brookes, Liston, Langstaff, South, Howship, and other famous surgeons. He had not brains enough to enlarge it himself, but he was sincerely devoted to the memory of his master—I had almost said he was an abject worshipper—and with the assistance of his son he got it into order for display and development by the more distinguished men who followed him.

The first of these was Richard Owen, a man of a different type, whose very aspect suggested cerebral hypertrophy. He was appointed assistant conservator in 1827, and full conservator in 1842. So he worked long with Clift, married his daughter, and was thoroughly imbued with his father-in-law's hero-worship. He became a comparative anatomist and palæontologist, and added many of those weird forms which now occupy the floor, glyptodons and megatheriums, and the giant elk, and fossils by the gross. But his great work was the publication of the memorable descriptive and illustrated catalogue of the physiological series of comparative anatomy, to which department he made important additions. Owen's was a stressful reign; for he could ill brook control, and the Museum committees were frequent and stormy. And so, great man though he was, he left without a vote of thanks or regret, to take charge of the Natural History Department of the British Museum in Bloomsbury in 1856.

Then came Quekett, of the Quekett Club fame, who had been student dissector at the College and assistant curator since 1842. He was essentially a microscopist, one might say a born microscopist, for his father was one before him, and at the age of 16 he gave lectures on microscopical subjects, illustrated by a microscope he had made for himself out of a roasting jack, a parasol, and a few pieces of iron he had purchased at a neighbouring marine store. He added little to the Museum except a valuable microscopical collection, but he drew up a catalogue of the fossil organic remains of plants. He was, as his portrait indicates, a jovial man. He retired on account of ill-health, and when he died at Pangbourne in 1861 he left a penniless and, alas, unpensioned widow.

And he was followed by Flower, a strong organiser and a born manager of men, whose graceful figure and handsome face many of us can remember. Under his peaceful rule dissensions ceased. He was, to begin with, assistant surgeon at the Middlesex Hospital, and served as surgeon in the Crimean war. He was appointed conservator in 1861 and stayed until 1884, when he succeeded Owen in the charge of Waterhouse's terra-cotta palace at South Kensington. He developed into a pure comparative anatomist and specialised in bones, and especially human bones. He amplified and enlarged Hunter's osteological collection, and has left in it a memorial to his industry and skill to which I shall refer later.

A word of explanation with regard to the natural history collection must here be introduced.

There were no natural history museums in London before Hunter's time. But the British Museum in its earlier days began to make such a collection. In 1809 they wanted to get rid of these specimens and sold them to us for £180, but in 1814 they found they had made a mistake, and so we sold them back again, but by good fortune retained the Evelyn plates of vessels and nerves, made in 1642 by a professor in Padua under Evelyn's direction and given by him to the Royal Society and by them to the British Museum. Dr. Keith has had them properly mounted, and they now have a prominent place allotted to them.

Hunter had a good many stuffed animals, but after obtaining a Royal Warrant, which is required before any of his specimens can be disposed of, they were sold or otherwise got rid of in 1829, 1834, 1843, and 1876; including, alas, those collected by Captain Cook. It must be remembered that at one time we used to fit out exploring expeditions, such as those of Captain Everard Home, Banks, Beechey, Franklin, Ross, Parry, and Darwin, with bottles and apparatus, and have now in our possession many of the specimens which they brought home.

When Flower left in 1884 he was succeeded by the amiable, retiring, laborious Stewart. Being a man of artistic temperament, he was attracted by such subjects as mimicry, symbiosis, and protective colouring. He was at first a teacher of physiology at St. Thomas's Hospital, but after his appointment here worked as a comparative anatomist. He extended Owen's rearrangement of the Physiological Series, which was not quite on Hunter's lines, as they both took rather the mechanical view as opposed to the physiological. A consummate draughtsman and a clear

exponent, he made many discoveries which he was too indolent (may I say) to publish, but they remain on the stands as silent but eloquent witnesses of his work.

And now I should tell Mr. Hunter that the mantle has fallen upon a thoroughbred compatriot of his own, and should feel confident that between them there would be illustrated the *action of the principle of universal sympathy*, except, perhaps, that there might be some incongruity between the northern accent of the one and that which used to be current in the neighbourhood of Long Calderwood. It would be necessary to add that under Dr. Keith's guidance, with the able assistance of the curators, Mr. Shattock and Mr. Byrne, we are trying our best to keep Hunter's spirit in view in all the changes which have been lately made and are still in prospect, and that "Body, Blood, and Motion," is our motto, and that to illustrate the processes of life is our leading idea.

These are the conservators, but it would be wrong not to mention some of the illustrious workers who, without holding that office, devoted much time and labour—often a labour of love—to the Museum. Pre-eminent amongst them is Sir James Paget, who examined and elucidated so thoroughly, and wrote so much of the descriptive part of the catalogue; and besides his there are the names of Stanley, of Goodhart, and Doran and Eve, and men like Elliot Smith who have added complete chapters to its story.

GROWTH OF THE MUSEUM.

Some idea of the way in which the Museum has grown may be gathered by remembering that no part of the original building remains. The room which was first erected in 1800 and completed in 1813, just a century ago, partly on the site of houses belonging to the College, partly on that of the old theatre in Portugal-street, occupied a position in the middle of the three existing galleries, and this was large enough to contain all the 13,682 of Hunter's specimens, including some which, as I said, have disappeared, as is shown by a very indifferent sketch, apparently of Clift's, in which the head of a giraffe, no doubt the one which in 1834 went with the other stuffed animals to the British Museum, appears looking out of the Museum through the gallery into the Cabinet room, whatever that may have been.

The Museum is now more than three times the original size, and contains 64,766 mounted specimens; and there are besides still unexplored stores to which constant additions are being made.

Some people may wonder why we try to keep adding to our invested funds. I say nothing about the uncertainty of riches, though that is perhaps more obvious now than when the phrase was coined. But I should like to point out that the Museum will continue to grow, and that we may some day wish to enlarge it, which would involve three things: diminution in income from rents, loss of interest on capital expended, and increase in expenditure for upkeep.

The Museum now consists of three long rooms, two of which are parallel with one another, and the third at right angles to these, both the first and the third being divided into two parts. Roughly speaking, the last contains the Physiological Series, while the two others are devoted to Anatomy and Pathology; but there are other rooms to which reference will be made; and scattered throughout are curiosities which have to find places where they can. Here a huge skeleton of a whale floats, like Mahomet's coffin, in mid air, and elsewhere are such unlikely objects as the clothes of a man stripped off by lightning, leaving him intact, or the initials—perhaps of two lovers—found on splitting a beech tree, healed over and buried beneath many annual rings.

A TOUR OF THE MUSEUM.

But it is really time to proceed with the proposed formidable inspection, and I would suppose that we begin by conducting Hunter through the door opening out of the Conservator's office into the smaller part of the eastern room, in the cases round the walls of which is the commencement of the series of comparative osteology.

He would gaze with astonishment at the group of vast fossil skeletons, and might possibly ask us what they had to do with his Museum—a question which might at first seem hard to answer But the great black statue of Owen in the corner would remind us that in 1855 he gave some lectures in this theatre on Hunter's published and posthumous papers on fossils, and that he showed by many quotations that Hunter began to hold almost modern ideas about geology and palæontology as early as 1761, when he was serving with the army in Portugal. The story of Noah's deluge had not satisfied Leonardo da Vinci and Fracastoro in the fifteenth century, but it still hampered the thoughts of scientific men of the eighteenth century. It is therefore remarkable that Hunter was able to emancipate himself so completely and, to quote from Owen, to recognise "first, the effects of running water as in valleys and river courses; secondly, the deposition of the matters so transported to the sea, noting the different distances to which such transported matters would be spread over the sea bottom, according to their size and other physical characteristics; thirdly, the erosive action of the sea on coasts, as moved by tides, currents, and winds; fourthly, the power and mode of operation of a retiring sea on a rising land; fifthly, igneous expansive force and volcanic eruptions; and sixthly, deposits through animal or organic agency."

This includes almost every agency of geological dynamics recognised at the present day, except that of ice, and was arrived at "by supposing from the state of the earth as it is now what must have taken place formerly." From this standpoint Hunter seemed to have an inkling of the origin of species and the gradual evolution of life, and was able to contemplate in some measure the antiquity of man. Thus it is fitting that (presided over by Owen) these horrid monsters should guard the portals of our Museum and that Hunter's 2773 fossils should be lodged, with his invertebrate specimens, in a special place of honour.

So we should turn to the left and tell him that the crowd of vertebrate skeletons in the next room, among which he would recognise many of his own favourite preparations, should really be in the cases along the walls, only unfortunately they are too large. These cases contain the continuation of the comparative osteology series. In passing we should point out Flower's magnificent preparations illustrating the evolution of the individual mammalian bones. On our way up to the galleries it would be explained that leading out of them are the new rooms added last year containing a collection of surgical instruments, the embryo of a medico-legal collection, his own invertebrate collection and the fossils to which I have just referred. And then in the galleries he would find his own physiological series amplified and enlarged. We should show them with confidence, tempered by the fear that he might impatiently resent certain modifications of order and arrangement, though he could not fail to recognise that the *idea* had been grasped. We should point out that the physiological series still illustrates processes rather than isolated facts, and is, therefore, drawn from the whole range of comparative anatomy. Thus, taking as an example the heading "Kidney," he would find specimens from 133 animals other than man, no less than 71 out of the total 144 being his own; and that the same thing is carried out under the other headings.

In order to grasp the plan on which the whole Museum is arranged, it would then be best to visit the ground floor of the eastern rooms. Beginning with the cases on the walls, we should find illustrations of normal (and, it must be owned, some abnormal) varieties of humanity, amongst which Byrne, the Irish giant, would be a familiar object. There are skeletons of dwarfs, of average men and women, and of geniuses and of criminals; and then we should start on the splendid collection of skulls illustrating ancient and modern types and examples of those of all the races under the sun, present and extinct. This carries round both sections of the room and a considerable part of the middle room.

The floor of the eastern rooms is devoted to specimens illustrating human anatomy. First, the collection of disarticulated bones in progressive series, showing their development from early fœtal life to maturity; and then dissections, which are said to be unequalled, mostly made by the skilful hands of Mr. Pearson, who has been prosector here for 56 years.

The Pathological Section.

And now there would be left only the pathological section to which it would be my duty and my pleasure to especially invite the attention of my guest, as I now do that of my audience.

Hunter's catalogue of this part of his collection was left in considerable confusion, but it is clear that his idea was to

divide it into two main groups, one illustrating processes of general pathology, the other the various morbid processes affecting particular organs. This has long been before the minds of those who have had charge of the Museum. But it is only during the last year that the Council has made arrangements for a full display of specimens illustrating general pathology.

The floor space of the central room has been cleared in a way it is needless to describe, and if it were only possible to find a better home for the suspended skeleton of the whale, uninterrupted daylight would illuminate groups of glass and gun-metal stands so arranged that they can be observed from all sides, labelled and supplied with handy card catalogues, and following one another group by group in the following order:—

1. Hypertrophy.
2. Aplasia.
3. Hypoplasia.
4. Atrophy.
5. Degeneration.
6. Necrosis.
7. Repair and grafting.
8. Inflammation.
9. Infective diseases—
   Bacterial: Glanders, Acute Endocarditis, Diphtheria, Tubercle, Leprosy, Actinomycosis.
   Protozoal: Syphilis, Tropical Diseases, &c.
10. Cysts.
11. Tumours.
12. Foreign bodies.

I have placed upon the table a few Hunterian specimens in order to show that it has not only been possible, but highly advantageous to use them for this purpose. You will observe what remarkably fine preparations they are.

1. A ringed stem to illustrate ... ... Hypertrophy.
2. An edentulous jaw to illustrate ... ... Atrophy.
3. Atheroma of the aorta ,, ... Degeneration.
4. Experimental necrosis on the metastarsal bone of an ass to illustrate ... ... Necrosis.
5. A hare-lip cured } to illustrate ... Repair.
6. A fractured clavicle }
7. A cock's spur implanted in the comb to illustrate ... ... Grafting.
8. Myositis ossificans ... ... } to illustrate Inflammation.
9. Necrosis of skull following a scalp wound ... ... }
10. Tubercle in the lung of an ox } to illustrate Infective diseases.
11. Specific necrosis of the skull }
12. Gas cysts in a hog's gut to illustrate ... Cysts.
13. Secondary sarcoma of rib ,, ... Tumours.
14. Gunshot injury of humerus of swan to illustrate ... ... Foreign bodies.

It would have been impossible in Hunter's time to make so complete a list as this because the great group of infective diseases would have been simple and unanalysed. If he had possessed a knowledge of bacteriology it would have saved him a vast amount of fruitless speculation, or at all events speculation which now seems to be disappointingly beside the mark. I think he would have lingered long over this department, for I hope it has been made clear that what has just been said is intended to be the kernel of my address: that this exhibition of illustrations of general pathology though a new departure, is Hunter's idea, and that it is not only new but good and, as far as I know, unique. I would, therefore, urge my hearers to visit and study it and judge for themselves of its utility and interest and of the skill of those who have brought it together.

The tour of the Museum would be completed by visiting the galleries of the central and eastern blocks, where the specimens are arranged according to the organs affected. In ascending to them it would be pointed out that a staircase descends to the basement in which is housed our unequalled odontological collection, where amongst the specimens which came to us from the Odontological Society are Hunter's own classical preparations.

And now I should bid my guest adieu, feeling, if not saying, that while in his writings there may be some things hard to be understood, here in our Meseum is recorded in unmistakable language the record of thoughts and ideas that is impossible to misapprehend.

SUGGESTED ANATOMICAL AND PATHOLOGICAL INSTITUTE.

Thus, in an imperfect way, I have tried to show what the Royal College of Surgeons has done, and hinted at the certainty that some day the Museum will have to be enlarged. Now let me put before you a vision of the future. Ought not this great city to have an Anatomical and Pathological Institute? Our University has again, by collision, passed into the nebulous state, and we know not in what form, nor, indeed, in what orbit or orbits it may finally revolve. It may be anticipated with confidence that it will emerge as a life-supporting globe or double star with a more equable temperature than at the present moment. Money is to be had for proper asking, and a site is generally obtainable when it is required. Can you not see such a noble institute close at hand, forming a part of a really living University, and also in close connexion with our College, attracting workers from all over the world, to utilise the vast material the Museum contains? It would strengthen the feeble bonds which at present unite us to the University, and supply a long felt want of the Medical Faculty. It would offer opportunities for original research in human and comparative anatomy and in pathology; and in its theatre lectures on advanced subjects would be delivered *urbi et orbi*.

RECENTLY DECEASED MEMBERS OF THE COUNCIL.

The terms of the bequest under which these orations are given instruct the speaker that "such Oration should be expressive of the merits in Comparative Anatomy, Physiology, and Surgery, not only of John Hunter, but also of all such persons, as should be from time to time deceased, whose labours have contributed to the improvement or extension of Surgical Science."

This would be an impossible task, for the whole world is apparently included in the purview, but according to custom and by inclination I must say a few words about two friends and colleagues on the Council whose vacant places we deplore.

Clinton Thomas Dent, an all-round original and successful surgeon at Hunter's own hospital, was Vice-President at the time of his unexpected death last summer. He had no specialism in medicine, and he will rather be remembered by his numerous friends for his many-sided character, multifarious attainments, and sterling worth than for striking additions to surgical practice or literature, and yet his contributions to them were neither few nor unimportant.

Sir Henry Trentham Butlin, my immediate predecessor, on the other hand, was well known as a surgical pathologist, whose chief labours were devoted to the treatment of, and the elucidation of the cause of, cancer, a subject to which it may be said he devoted his last breath. Those who can recall this day four years ago, when his oration was delivered in perfect English and without a note, will agree that he was a finished orator. We on the Council knew him as an admirable man of business, who wisely conducted the affairs of this College, as a man of the highest integrity, a pleasant companion, and a faithful friend.

COMPARISON OF LISTER AND HUNTER.

But beyond and above all the other leaders, or men in the ranks, who have passed away during the last two years, is Lister, who by common consent is the greatest—that is, the most thoughtful and original—surgeon since Hunter's time, one who more than any of his predecessors was influential in revolutionising both the science and the art of surgery. It is not the occasion to enter upon a survey of Lister's work, but it may be interesting to consider the influence that Hunter had upon him, and briefly to compare the two men.

The first time I heard the name of John Hunter was in my youth during one of Lister's vacations, which he often spent at his father's house. The subject he was describing is forgotten, but the name impressed itself upon my young memory, and many a time in after years have we, who were closely associated with him, heard this name recalled with reverence and admiration. Occupying a prominent place in his study was Sharp's engraving, bequeathed to him by Mr. Syme, and now my treasured possession, as is also the edition of Palmer's Life, which is marked in many places. These passages show that Lister was studying this book at the time he was making his early observations on coagulation of the blood. Indeed, a precise date may be fixed by a pencil note to the account of "a gentleman with violent inflammation in one of his eyes and whose blood was extremely sizy, though the coagulum was very loose." The note is "No excess of fibrin in this buffed blood apparently. J.L. /58." Other marks are opposite references to inflammatory fever; the principles of bleeding, and especially their possible dependence upon continuous sympathy; and local diseases cured by sympathy, as by the application of

an irritating medicine applied to some other part which this diseased part sympathises with. There are several in the lecture on aneurysm; indeed, there are exclamation marks opposite some references to hydrostatics. And similar annotations are met with on the lecture on Fistula and elsewhere.

It might be wondered what were the points of attraction between men in many ways so different. Certainly Lister possessed none of Hunter's mania for collecting. He had, indeed, what he called his museum, one or two bread-pans containing specimens, no doubt of great value, and familiar to the succeeding generations of attenders at his lectures. But his shelves and cupboards were filled with more transitory things—flasks and test-tubes and the materials for experiment. Lister bought no costly works of art, and was content with early or late Victorian furniture, and though he often adopted Hunter's generous but confusing method of leaving the amount of the fee to the patient's decision, he did not spend the proceeds in the same reckless way.

The points in Hunter's methods which Lister seemed most to admire and adopt were, first, that he appears to have taken nothing for granted. No matter how revered the teacher, how sacred the tradition, Hunter and Lister both asked themselves whether the evidence was sufficient to support the theory or warrant the treatment. Perhaps they would not have liked to be called sceptics, but in scientific matters they were, and it is the only safe position for a scientific man to adopt, though it may not indicate the path of worldly wisdom to the practitioner.

Illustrations might be given in Hunter's operation for aneurysm, or his observations in fistula in ano, or in Lister's amputation of the thigh, his excision of the wrist, or his methods of treatment of varicose veins or hydrocele. But there is no need to multiply examples. The whole story of Lister's discoveries and of the modifications in ordinary surgical practice which he introduced testifies to the truth of this assertion.

But, secondly, the most striking resemblance between them is their habit of referring everything to experiment. Their lives were occupied in testing by means of experiment every problem that presented itself. They were, indeed, both of them, ideal inductive philosophers.

It seems in some quarters to be considered that an inductive philosopher is debarred from framing for himself hypotheses, but this I conceive is not the case. Did not Bacon himself say, "Vaga experimentia mera palpatio est"? Such an idea would seem to imply that the followers of that great thinker experiment at large, and only accept the results of those promiscuous excursions. The difference, however, between them and the deductive philosophers is that the latter found their creed on deduction from unverified postulates, whereas the former require proof of the correctness of the premises before they complete the syllogism. No great Baconian can get on without hypotheses, but he is ready to reject those that are not supported by his experiments. Are not Pasteur and Darwin proofs of the truth of this statement?

There is an interesting appreciation of Hunter's character in Buckle's "History of Civilisation in England." Buckle is almost labouring the point that the trend of thought in Scotland in the eighteenth century was deductive and that in England inductive, and is arguing that Hunter was a sort of hybrid.

> When John Hunter arrived in London, in 1748, Newton had been dead more than 20 years, and the English people, absorbed in practical pursuits, and now beginning, for the first time, to enter into political life, had become more averse than ever to inquiries which aimed at truth without regard to utility, and had accustomed themselves to value science chiefly for the sake of the direct and tangible benefit which they might hope to derive from it.
>
> That Hunter must have been influenced by these circumstances will be obvious to whoever considers how impossible it is for any single mind to escape from the pressure of contemporary opinion. But, inasmuch as all his early associations had inclined him in another direction, we perceive that, during his long residence in England, he was acted on by two conflicting forces. The country of his birth made him deductive; the country of his adoption made him inductive. As a Scotchman, he preferred reasoning from general principles to particular facts; as an inhabitant of England, he became inured to the opposite plan of reasoning from particular facts to general principles.

It is rash to differ from so great an authority, but, as a matter of fact, did Hunter really get his mind down on methods of reasoning and such abstruse questions during his idle youth at Long Calderwood, when he cared much more for country sports than for books, or whilst helping his conv vial brother-in-law, Buchanan, in his carpenter's or wheelwright's shop? Did he even acquire from his surroundings or by inheritance any method of ratiocination? I think not. And if Scotch influence had anything to do with the formation of his mind it must have come from his brother William. But in reading much of his writings and in trying to assimilate the spirit in which the Museum was planned, I feel that Buckle has overstated his case, and that Hunter was essentially an inductive philosopher.

And so was Lister. His whole life was made up of experiments. Any time that could be filched from practice or unavoidable public and private duties was spent in his study, investigating for himself such subjects as the coagulability of the blood, the growth of micro-organisms, the properties of antiseptic substances, blood pressure, and so forth, and it is interesting to notice how he called in aid for the solution of his special problems a well-grounded knowledge of botany, zoology, chemistry, and physics, subjects of which it is becoming too much the habit nowadays to minimise the importance.

But there are fundamental differences between them, of which the most important (to speak with all respect) is that Hunter's work is the more diffuse. He seems to fly from one subject to another, as if he were unable to resist the temptation to investigate everything that came in his way. It is as though what has been referred to above as the spirit of the collector inspired his more serious work, and so he has left a record of an almost incredible number of problems either completely or partially elucidated.

Lister, on the other hand, did not yield to this temptation if he felt it. Starting on the narrow path upon which Providence had placed him, he followed it till it broadened and straightened out into the great highway that led him to his goal. Not that he denied himself the pleasure of occasional explorations of tempting by-paths, but what he gained from these excursions was always utilised to corroborate and support him upon his journey. And thus it comes about that Lister's fame rests chiefly upon the one great achievement of his life, whilst the lesser and more subsidiary ones are by many forgotten or ascribed to others; whereas it is difficult to mention one or even a few of Hunter's labours which stand out in glaring predominance above the rest.

Of less importance but equally striking are the differences between them in temperament, culture, and manners. Hunter was imperfectly grounded in general education, a small reader, abrupt, not to say rough, in his conversation, which was flavoured with a full share of the impetuous vocabulary of the eighteenth century. Though generous he was impatient; though on the whole a good friend, he was somewhat inconstant; and his mind was so fully occupied with his work that more solemn subjects had no chance of consideration.

Lister's mind was well stocked with classical and other learning, and his library was lined with carefully studied books. He was gentle and courteous, and though full of humour he could not abide even those relics of coarseness which survived in "polite conversation" in the nineteenth century. He was always ready to make allowance for the incompetence of those who did their best; he made no enemies, and his position as regards more serious matters was a very different one from that of his great predecessor.

Both, however, were fond of argument, and neither in the course of it could easily brood opposition. Verily it is a matter of thankfulness that they lived at different epochs. It is well that Lister was able to contemplate Hunter's many great qualities and his few obvious defects through the modifying mists of the intervening years.

CLOSING REMARKS.

I have spent the last year in an atmosphere permeated by the spirit of John Hunter; I have had the privilege of passing the best years of my life in the closest intimacy with Lister, and I often ask myself in what way a genius surpasses the average man. After a day passed in the company of such a one, and after meditating on any particular thing that he did, the ordinary man might fancy that there was nothing in it he could not have done equally well himself; and yet the life's performance is so different! The individual touches of the brush might conceivably be made by anyone, but only the artist can produce the picture. That, of course, depends upon the master mind which coördinates the details, making them minister to the result. We cannot attain to that, and it is the consciousness of this superiority of the

great that makes the position of ambitious mediocrity so painful. But though we cannot reach to the height of Lister or of Hunter we may make our lives more useful by imitating their extreme diligence, their accuracy, and their habit of finishing whatever they were engaged upon before turning to the next matter; by not shirking the long days of labour and nights devoid of ease, or spending too much of our time on pleasures and indulgences.

The problem of life to Hunter was the still unsolved riddle of its meaning and of its origin. Lister was content with the belief that at the present day there is no spontaneous generation. Had he doubted the truth of this doctrine he might possibly have had misgivings as to the truth of the gospel that he preached. Fortunately he did not doubt, for he was a man of firm convictions.

But after all, whether chemical changes are now and always converting dead inorganic substances into living protoplasm is, for practical men, no more important than the more abstruse question as to whether matter is composed of atoms or vibrations. Life for us has another meaning; whilst the blood is moving in our bodies, as John Hunter said, we have life, and the problem for us, taking him for an example, is not simply to keep alive, but to live well.

Nicht dass man lebe, sondern wie,
Ist Mannes würd'ges Streben;
So lang mir Leben Gott verlieh,
Will ich's lebendig leben.

TRANSMISSION TO MONKEYS OF VIRUS OBTAINED FROM ENGLISH CASES OF POLIOMYELITIS.

BY JAMES McINTOSH, M.D. ABERD.,
BACTERIOLOGICAL LABORATORY, LONDON HOSPITAL (PROFESSOR WILLIAM BULLOCH);
AND
HUBERT TURNBULL, D.M. OXON.,
DIRECTOR OF THE PATHOLOGICAL INSTITUTE, LONDON HOSPITAL.

ACUTE anterior poliomyelitis, or infantile paralysis, has, during the last few years, been occupying the attention of the medical world on account of the epidemics of varying intensity which have occurred in Europe and North America. Prior to 1909 the infective nature of the disease was based on epidemiological and pathological evidence; in that year, however, Landsteiner and Popper[4] demonstrated the correctness of the deduction by producing the disease in monkeys by the inoculation of an emulsion of the spinal cord of a fatal case of infantile paralysis. The possibility of transmitting poliomyelitis to monkeys has been confirmed by Knoepfelmacher,[9] Strauss and Huntoon,[12] Flexner and Lewis,[1] Levaditi and Landsteiner,[5] Leiner and Wiesner,[7] Römer,[10] and Thomsen.[13] Landsteiner and Popper failed to propagate the disease in series, but Flexner and Lewis, and later Landsteiner and Levaditi, showed that the disease could be propagated in series in the monkey.

Up to the time of writing no one has recorded the successful inoculation of the virus in Great Britain. Levaditi in Paris, however, managed to transfer the disease to monkeys from pieces of cord sent to him by Dr. M. Gordon.[6] Dr. Gordon's material was obtained from cases which occurred in an epidemic in Devonshire and Cornwall in 1911. Whether the English virus is absolutely identical with the continental and American virus has yet to be demonstrated.

In the district (East London and Lower Essex) embraced by the London Hospital acute anterior poliomyelitis has been increasing in prevalence during the last three years, and from June to October, 1912, over 30 cases were admitted into the hospital as in-patients. According to Dr. E. G. Fearnsides, medical registrar, a considerable number of cases of herpes zoster were observed simultaneously with the cases of infantile paralysis.

This paper deals with the inoculation into monkeys of material from four cases of poliomyelitis which, with one exception (Case 1), occurred in the London Hospital district.

Inoculation technique.—In every instance the monkeys were inoculated intradurally as well as intraperitoneally with the emulsions of cord. Pieces of the spinal cord and brain, unless otherwise stated below, were on their removal from the body transferred to a bottle containing a 33 per cent. solution of glycerine in saline and were kept in the ice chamber till required. For the inoculation of a monkey about 1 grm. of cord was placed in a conical glass, cut into as small pieces as possible with a pair of scissors, pounded up with a glass rod, and finally rubbed up with about 6 c.c. of saline. The larger particles were allowed to settle, and then the emulsion was drawn into a syringe. In practice it was found better to use a 10 c.c. record syringe for the intraperitoneal injection, and a 0·5 c.c. syringe with a finer needle for the intradural inoculation. Under an anæsthetic (ether) a small incision about ¼ in. long was made down to the periosteum just above the superciliary ridge and just outside the middle line. A small hole was then made with a drill (diameter 2 mm.), a fine needle introduced, and 0·5 c.c. of the emulsion injected. At the same time 4 to 5 c.c. of the emulsion were injected into the peritoneum.

The clinical histories and pathological reports of the cases from which the material for inoculation was obtained are detailed below.

In order to abridge the description of the microscopical changes it is advisable to refer here to some of the salient features found in these cases and in other cases of poliomyelitis which have been obtained from the neighbourhood in the last two years. Definitions can thus be given of the terms employed.

General characteristics of infiltration.—Infiltration is found in the meninges, especially the pia, in the lymphatic sheaths of the vessels, and in the nervous tissue external to the sheaths. It may be present in the nerve roots and their ganglia. In the case of many of the larger vessels within the cord and brain the arteries and veins are enclosed in a common lymphatic sheath which is a direct extension of the pia. This is seen very clearly in the case of the large branches of the arteries and veins which enter the cord from the anterior fissure. The smaller vessels and at any rate the larger capillaries have a lymphatic sheath proper to themselves. Where smaller branches are given off from vessels enclosed in a common sheath, the "individual" and "common" sheaths are seen to be in direct continuity. Both these "common" and "individual" lymphatic sheaths will be referred to as "adventitial sheaths," a distinction only being made in cases in which there is a marked difference in the cells of their respective infiltrations.

The infiltration of the substance of the cord or brain external to the collagenous membrane which bounds the adventitial sheaths may be called the "extra-adventitial infiltration." This is seen in three forms: 1. As a more or less evenly distributed infiltration in the glial matrix. 2. As groups of cells packed together in areas in which glial fibres are absent. The former infiltration will be referred to as "diffuse," the latter as a "focal cellular aggregation." 3. In addition to these two forms of extra-adventitial infiltration the collection of cells round, and in some cases within, the nerve cells and their protoplasmic processes requires special mention. This has been called "neuronophagia." Some of the "focal aggregations" doubtless represent collections of "neuronophagocytes" which have completely replaced degenerate nerve cells. Their distribution often suggests this. But in many aggregations there is no evidence of this; such aggregations lie, as a rule, in close relation to small capillaries, others occupy extensive areas. A zone of infiltration is frequently seen round a delicate capillary in which no adventitial sheath is visible. Such perivascular infiltration is doubtless the precursor of many of the "aggregations."

The character of the cells in the infiltrations.—The cytology of all the cases examined is in general very similar. The character of the infiltration differs, however, in each of the above-mentioned sites. Striking variations are also found in the character of the cells, and more particularly in the relative number of the different cells, in the same sites in different cases and even in different portions of the central nervous system in individual cases. In order to compare different cases it is necessary, therefore, to enumerate the chief types of cells which may be found, and to furnish them with names. For the examination of the cells the stains of Jenner and Unna-Pappenheim have been chiefly employed.

The cells in the infiltration of the adventitial sheaths.—The majority of the cells have a basophile protoplasm devoid of specific granules. Although there appear to be transitional forms between these non-granulated cells, there are four types which can be identified with little difficulty. Incidentally it may be mentioned that the recognition of these types is of importance in determining the origin of the cells.

1. The majority of the cells are usually closely similar to the *small and large lymphocytes* of the blood. Large forms, as a rule, predominate. The smaller cells generally have a single nucleolus, the larger may have two or even three nucleoli. The protoplasm of the larger cells is usually more basophile and generally contains some large vacuoles.

2. Closely allied to these are cells which on an average have a surface area equal to from three to five red corpuscles. Their protoplasm is intensely basophile and coarsely reticulated. The nucleus contains large, oval, very conspicuous nucleoli; three nucleoli are usually seen. These cells are similar to cells present in the germ centres and in the rest of the lymphadenoid tissue of lymphatic glands. Deeply basophile cells containing karyokinetic figures are also found in many cases; these cells are usually of about the same size as the cells under discussion. In the absence of a less compromising term the cells of this type may be called "*lymphoblasts*."

3. Easily distinguished from the above is a cell which averages in surface area three red corpuscles. It has a very faintly basophile, finely reticulated protoplasm. The nucleus has a much more delicate membrane and more delicate fibrils of chromatin than in the cells already described. The chromatin is arranged in a net which may be very similar to that of the fixed cells of the adventitial sheath, but is as

a rule of wider mesh. One to three small nucleoli may be recognisable. The nucleus is usually indented, and is frequently lobulated and greatly twisted so as to be indeed polymorphic. The cells are occasionally multinuclear. Many cells of this type can only be differentiated from the large mononuclear leucocytes, or hyaline cells, of the blood by the greater basophilia of their protoplasm. These cells correspond to cells which have been called "*histogenous hyaline cells*," they may be called here for brevity "*hyalines*." In many cases they contain cellular remnants and form the "*phagocytes*" of the sheaths. The greatly vacuolated "*fat-granule cells*" of the sheaths appear to be a variety of this cell.

4. Typical "*plasma cells*" are present in some cases.

Cells containing specific granules are also found in the sheaths.

5. "*Neutrophile leucocytes*" with polymorphic nuclei are found in extremely variable numbers. They frequently show degeneration.

6. "*Eosinophile leucocytes*," which usually have a polymorphic nucleus, are very constantly present in relatively small numbers.

7. "*Basophile leucocytes*" are very rarely found. In addition to these non-granular and granular cells deeply basophile "*pyknotic bodies*" may be present. Many are naked, others are surrounded by a zone of protoplasm which is usually acidophile and may contain neutrophile granules. Many of these bodies are certainly derived from degenerate leucocytes.

The cells of the diffuse extra-adventitial infiltration.—1. There is an increase of glial cells having nuclei of typical structure—that is to say, nuclei of rounded shape in which there is a closely meshed net of very delicate fibrils of chromatin and numerous conspicuous nodes. The smaller nuclei are usually deeply stained, and it is difficult to distinguish a nucleolus; the larger are paler and show a large, conspicuous nucleolus. Such cells in the normal cord are usually "fixed"—that is to say, the cell body cannot be distinguished from the glial net by ordinary stains; some are "free," showing a sharply defined protoplasmic body. The increase in poliomyelitis is chiefly due to an increase in the free variety; the free cells are often found in small groups of two or three; their protoplasm is relatively abundant, varies in intensity of basophilia, and has a granulated appearance. The cell body is frequently polygonal and the nucleus eccentric. These cells may be referred to as "*fixed*" and "*free*," "*typical glial cells*." Deeply basophile cells containing *karyokinetic figures* may be present in the glia.

2. In areas of diffuse infiltration there are other cells which appear to be fixed in the glia, but have a different nucleus. They are usually more numerous than the typical glial cells. The nucleus is elongated and has a wider-meshed net of fine fibrils of chromatin and less conspicuous nodes. The nucleus is frequently bent or twisted and may be lobulated. These cells appear to be connected with the walls of capillaries, and in the character of their nucleus they bear a greater resemblance to the fixed cells of the adventitial sheaths than to the typical glial cells. For convenience they may be called "*elongated glial cells*." Exactly similar nuclei are found in free cells, being surrounded by a narrow zone of well-defined, basophile protoplasm.

3. Another group of cells is characterised by the irregularity of the shape of the nucleus and the relative abundance of a faintly basophile protoplasm. The cell is usually rounded and occupies, on an average, an area equal to that of three red corpuscles. It bears a strong resemblance to the hyaline cell of the sheaths. The nucleus resembles a curved sausage or a horseshoe, or its extremities are bulbous, bent and approximated so as to be partly superimposed; it frequently is narrow and bent in the manner of a heraldic scroll; in many cases it closely resembles the nucleus of a polymorphonuclear leucocyte. The nucleus has a faintly stained plasm, a narrow membrane, and a few delicate, but conspicuous, threads of chromatin, which form a widely meshed net. The net has three or four nodes, which are generally somewhat triangular. One to three nucleoli may be visible in nuclei, which are not markedly polymorphic. A few cells are multinuclear. Examples of the cells of this group are figured by Wickman (1911) (14) as "polyblasts," and he considers that they are developed from emigrated lymphocytes. Inasmuch as Maximow (8 and 9) derived his polyblasts from cells of different kinds, the term may be retained here without accepting the derivation given by Wickman. The protoplasm of the characteristic "*polyblast*" of poliomyelitis is finely reticulated, but varying degrees of vacuolation are encountered. Transitions may be traced to cells which have the characteristic appearance of "*fat-granule cells*." Other cells are "*phagocytes*," containing pyknotic, nuclear remnants.

4. Emigrated "*eosinophile leucocytes*" are not uncommon in some cases.

5. The number of "*neutrophile leucocytes*" varies within very wide limits. In some cases they are the chief cell of the diffuse infiltration; in others there may scarcely be a cell containing neutrophile granules. When neutrophile leucocytes are abundant they usually show varying degrees of degeneration, when compared with the corresponding cells in the vessels. They may show extreme degeneration, necrosis, and fragmentation, and transitions may be followed from well-formed leucocytes to pyknotic globules of chromatin surrounded by a zone of granulated or non-granulated acidophile protoplasm and to naked pyknotic bodies.

The cells in the focal aggregations.—Here (1) *neutrophile leucocytes* and (2) *polyblasts* are found. The relative number of the former varies extremely. When they are present they usually show different degrees of degeneration and disintegration; their remnants are engulfed by the polyblasts. The polyblasts may resemble typical "*fat-granule cells*." (3) *Lymphocytes* are frequently present in the aggregations which are found round small capillaries.

The cells round the nerve cells.—The neuronophagocytes are (1) *typical free glial cells*; (2) *polyblasts*; and (3) *neutrophile leucocytes*. The number of the latter is extremely variable. They may be the only cells present. When present they usually show varying degrees of degeneration and necrosis, and they are evidently to a large extent the source of pyknotic bodies which are found in the perivascular space. (4) Occasionally a cell which resembles a *lymphocyte* is present.

CASE 1.—Female, aged 14 years, of St. John's Wood. The history of the case was as follows:—

History.—On Saturday, Dec. 24th, 1910, the brother of the patient, aged 17 years, complained of being unwell. On Sunday he still felt out of sorts, refused to go to church, and said he had difficulty in breathing. Later in the day his symptoms became alarming, and the doctor was called in and diagnosed œdema of the lungs. The breathing became more and more difficult, and he died at 2 A.M. on Monday, after an illness of about two days.

On Wednesday morning (the 28th) his sister, aged 14 years, said she was ill like her brother and refused to get out of bed; the doctor was called in, but found nothing. On Monday she had difficulty in breathing, and Dr. Henry Head was consulted at 7 P.M. that evening and found all the intercostal muscles paralysed. Death took place at 8 P.M. the same night from respiratory failure.

Necropsy.—A post-mortem examination was made on Dec. 29th. Nothing abnormal was found except that the grey matter of the cord was very congested.

About 1½ inches of the cervical cord of this case were obtained from Dr. Henry Head.

Microscopic examination. S. D. No. 2173, 1912.—(1) A portion of *cervical cord* fixed in formalin and embedded in paraffin. The posterior roots are not infiltrated; the anterior are not present in the sections. There is considerable infiltration of the pia on the ventral aspect of the cord, especially in the neighbourhood of veins. The pial extension in the anterior fissure, and surrounding the larger branches of the anterior spinal vessels within the cord, is considerably infiltrated. There is also infiltration of the sheaths of the vessels in the posterior septum, several vessels which pass from the pia through the white matter in the antero-lateral regions of the cord, many vessels in the posterior horns, and the larger vessels in the anterior horns. There is considerable diffuse infiltration of the grey matter, especially in the anterior horns. In the anterior horns there are also many cellular aggregations. There is much retraction of the tissues, the epispinal space and perivascular canals being conspicuous. Some of the nerve cells in the anterior horns have apparently disappeared. The remaining nerve cells in the anterior and posterior horns show complete or almost complete tigrolysis; very few retain an angular shape. Their nuclei are occasionally eccentric and usually very pale, fragmented, or pyknotic. Many nuclei are absent. A few cells not infrequently lie round the nerve cells, occasionally filling lacunæ on their surface, but rarely being present within their protoplasm.

Cytology.—The majority of the cells in the infiltration of the adventitial sheaths are lymphocytes. There are many lymphoblasts. There are also considerable numbers of hyaline cells. Some of these are phagocytic, containing pyknotic nuclear remnants. Phagocytosis is, however, seen very rarely in the sheaths. Neutrophile polymorphonuclear leucocytes are rare in the sheaths of the larger vessels; they are more numerous in the sheaths of capillaries; in the latter there are occasionally as many as three in contact with one another. One leucocyte containing basophile granules was found; there are also some mast cells among the fixed cells of the sheaths. Red corpuscles are sometimes present in the sheaths. In the diffuse infiltration a considerable number of neutrophile leucocytes are present. They usually show degeneration; compared with leucocytes within the vessels they are ill-defined, their granules are less distinct, and their nuclei tend to be pale or pyknotic. There is an increase in fixed and free "typical glial cells." There are also many "elongated glial nuclei." There are rounded pyknotic nuclear remnants and very small round cells with pyknotic nuclei and acidophile protoplasm. Pyknotic bodies are not, however, a conspicuous feature in this section. In the cellular aggregations the majority of the cells are polyblasts. There are also, especially in the smaller aggregations, neutrophile leucocytes. Among the neuronophages degenerate neutrophile leucocytes and free glial cells can be recognised. In the engorged vessels there is a considerable number of neutrophile leucocytes.

(2) In a series of celloidin sections, kindly put at our disposal by Dr. Henry Head, the perivascular and diffuse infiltrations can be traced from *the sacral cord to the mid-brain* at the level of the red nuclei. The cord is more severely affected than the medulla and mid-brain. Some sections of the cervical cord are more severely affected than the section described above.

The piece of cervical cord was removed aseptically and kept 11 days in the ice-chest under aseptic conditions, then an emulsion of the cord in normal saline was made and injected intradurally and intraperitoneally into three monkeys (Macacus rhesus). No rise of temperature or any bad effects were observed in any of the animals, and a histological examination of pieces of the brain and cord of one of them showed no alteration suggestive of poliomyelitis.

CASE 2.—A boy, aged eight months, of Leyton, N.E. The patient was admitted to the London Hospital under the care of Dr. Otto Grünbaum on Oct. 6th, 1911, 14 days after the onset of illness, and died on Nov. 20th, 1911.

History.—Previous to this illness the child has never been ill; there is no history of nerve disease in the family. On Sept. 23rd, 1911, the child became feverish and "lay about." He did not vomit, nor did he seem to be in pain. On the next day he had a mild attack of diarrhœa and passed foul-smelling liquid motions. The fever persisted for about a week. Three days after the onset he was noticed to be unable to sit up, and his legs and arms appeared to be weak; moving him now seemed to cause pain. As the weakness did not improve he was brought up to the out-patient department on the fourteenth day of the illness, and admitted.

On admission the child was a well-developed, well covered, healthy looking baby of eight months; he weighed 1st. 4lb. 10oz. The left leg could not be moved voluntarily. The power in the right leg was small; rotation at the hip and slight movements at the knee could be performed voluntarily. The right ankle and toes were completely immobile. The muscles of the back were weak, and the child could neither sit up nor raise his head from the pillow. The power and range of movements of the left shoulder, arm, forearm, hand, and wrist were slightly impaired. Movements of the right shoulder and elbow were small in range and weak in power; movements of the wrist were fair and of the fingers good. The paretic muscles were flaccid and hypotonic, but not wasted. No loss of sensation could be detected, and passive movements of the paretic muscles were painless. Knee-jerks

could not be obtained, and there was no evidence of involvement of cranial nerves. The heart and lungs were clear; the temperature ranged between 99·8° and 98° F.

Under treatment with massage and passive movement the right arm and leg improved considerably; the left leg, however, showed little improvement, and wasted. On Nov. 13th the child developed nasal and faucial diphtheria, from which he died on the 20th.

Summary of necropsy (No. 1188; Nov. 21st, 1911).—Bronchopneumonia. Nasal, pharyngeal, and laryngeal diphtheria. Healing poliomyelitis. Operation: tracheotomy.

Macroscopic examination of central nervous system.—The dura was firmly adherent to the calvaria, which averaged about two millimetres in thickness. The cerebral venous sinuses contained fluid blood and red gelatinous clot. The pial vessels of the brain were injected. The convolutions were not flattened. The cisternæ basalis and magna were considerably distended by clear fluid. Before complete exposure of the spinal cord the laminæ of the first thoracic vertebra were removed, and the posterior roots of the first thoracic segment were ligatured. The subarachnoid space over the termination of the cord contained about one drachm of clear fluid. The inner surface of the dural theca was smooth and glistening. The leptomeninges were thin and transparent.

The following appearances were seen on section.—In the cerebral hemispheres the cortex was flat and of a uniform purplish-grey colour; the medulla was white. No abnormality was detected in the basal ganglia, pons, and bulb, save a minute hæmorrhagic dot in the centre of the decussation of the pyramids. In the greater part of the cord the grey matter was grey and the white matter white. In the fifth cervical segment the right anterior horn was pink; vessels were visible in the grey matter throughout the greater part of the cervical region. Vessels were also visible in the grey matter of the third and fourth lumbar segments; the anterior horn on the left side of the fourth lumbar segment became slightly sunken.

Segments were removed from the cervical, thoracic, and lumbar region for inoculation.

Microscopic examination.—The fourth lumbar, seventh thoracic, and seventh cervical segments, portions of the *medulla, pons, cerebellum, right and left basal nuclei*, centre of *right and left Rolandic regions*, and *five other areas of cortex* were fixed in 4 per cent. saline formalin and embedded in paraffin. Other portions were placed in Müller's fluid for Marchi's method. Sections of the 15 portions fixed in formalin and embedded in paraffin show, with the exception of œdema of the leptomeninges of the cerebrum, no abnormalities save in (1) the fourth lumbar, and (2) the seventh cervical segments.

(1) In the *fourth lumbar segment* there are a very few lymphocytes in the pia, especially in the neighbourhood of the veins. There is a conspicuous, large, round, pale area of softening in the ventrolateral portion of the left anterior horn. Nerve cells are still present in the mesial portion of the anterior horn and the base of the posterior horn. The adventitial sheaths of some of the vessels within the left anterior horn are infiltrated. The cells are almost all very large, vacuolated, fat-granule cells; they have either a large twisted, pale nucleus showing a prominent and abundant net of chromatin, or they have a smaller, oval, very deeply stained nucleus in which the structure is obscured. There are also a few lymphocytes. In the extra-adventitial tissue there are considerable numbers of very similar fat-granule cells and a marked excess of fixed and free glial cells.

On the right side a few nerve cells still remain in the lateral groups. A similar infiltration of the adventitial sheaths and of the extra-adventitial tissue is present. Fat-granule cells outside the adventitia are rare on this side, and there are few free glial cells.

(2) In the *seventh cervical segment* there is a great diminution in the number of nerve cells in both anterior horns. On both sides the lateral, and especially the ventrolateral, groups have suffered most; the lateral groups on the right side are almost completely destroyed. There is a slight infiltration of the sheaths of a few vessels in both anterior horns by fat-granule cells and occasional lymphocytes. In the extra-adventitial tissue there is a marked excess of fixed and free glial cells, the excess being slightly greater on the right side.

In neither segment are leucocytes containing specific granules, or plasma cells present in the infiltrations.

Pieces of the cervical, thoracic, and lumbar cord were emulsified in normal saline and injected into a Macacus rhesus monkey, but although the monkey was observed over a long period of time no bad effects were seen.

CASE 3.—A boy, aged 18 months, of Stepney, E. The patient was admitted to the London Hospital under the care of Dr. Cecil Wall on the evening of Sept. 27th, 1912, and died 13 hours later.

History.—The patient was the second of two children. His only brother was alive and healthy, aged 4 years. His father and mother, who had been married five years, enjoyed good health. There was no family history of tuberculosis, rheumatism, or nervous disease. The patient was a fine, healthy baby at birth. He was breast-fed for 12 months, and had never had any previous illness. On Sept. 23rd, *four days before admission*, the child was noticed to be cross, feverish, and ailing. On the evening of this day he vomited. Since the onset of the illness he had been drowsy, thirsty, and constipated. No local weakness had been noticed by the mother, who had nursed the child. On Sept. 27th, the day of admission, about 5 P.M., the mother noticed that the child's breathing suddenly became embarrassed and that his colour altered. At 7.30 P.M. the child was admitted.

On admission the child was a fine, well-developed, healthy-looking baby. The face was flushed, the lips blue, the extremities greyish blue. From time to time under observation, in attacks, the colour of the child was seen to become greyer and more ashy. He cried seldom, and then the cry was feeble. Over the region of both shoulders was a macular eruption, which had not been noticed by the mother.

Cranial nerves.—There was no absolute palsy of any eye muscle, but under observation dissociated movements of the eyes were seen. The face was symmetrical. The tongue could be protruded and the child swallowed readily. The trapezii and sternomastoid muscles acted poorly.

Motion.—Both arms were flaccid and paretic, and under observation were not moved voluntarily. The left leg was paretic and undertoned; the right leg was seen to be drawn up spontaneously on occasion, and it could be induced to retract reflexly by pinching the leg. The intercostal muscles on both sides were absolutely motionless, and respiration was carried out entirely by means of the diaphragm. The respiratory movements were accompanied by "swallowing movements" of the larynx and "tooth grinding" movements of the jaws and lips. On the lips was froth. There was no stridor. The muscles of the erector spinæ group were all paralysed. The child when picked up by the waist fell backwards like a formless mass.

Reflex movements were elicited from the face and right leg when these were pinched.

Reflexes.—The knee-jerks could not be obtained on either side. The plantar reflexes on each side were flexor in type. The abdominal reflexes could not be elicited. Doubtful arm-jerks were obtained. Kernig's sign could not be elicited. The pupils reacted readily to light.

The temperature in the rectum was 102·4° F. The rate of the pulse was 152 per minute and regular. The rate of respiration was 64 per minute. The cardiac sounds were natural. There was no abnormal dulness over the chest. The breath sounds were masked by noises produced in the throat.

The child died at 8.30 A.M., 13 hours after admission, from increasing respiratory difficulty. During the night preceding death he had five or six attacks of grave dyspnœa accompanied by universal greyness, much retraction of the lower ribs, and an increased degree of cyanosis; he swallowed stimulants readily, but these produced no improvement.

Summary of necropsy (No. 648, Sept. 30th, 1912).—"Respiratory failure. Acute polioencephalomyelitis. Collapse of lower and posterior portion of right lower lobe and of inferior margins of both lobes of lungs. Tuberculosis; a few caseous areas and caseous miliary tubercles in the glands in the central and upper tiers of the mesentery; submiliary granulation tubercles in spleen (2 oz.). Great congestion of liver (15 oz.), kidneys (3 oz.), stomach, and intestines. Large thymus (35 grm.), lingual, faucial, and pharyngeal tonsils; general enlargement of lymphatic glands; large Peyer's patches and solitary follicles in intestine. Muco-pus in right mastoid. A very fat, well-developed child."

Macroscopic examination of central nervous system.—The calvaria was 1 to 2·5 mm. thick, and hard to cut with the knife. The dura was adherent only in the region of the anterior fontanelle; its inner surface was smooth. On removal of the dura the hemispheres showed flattened convolutions with narrow, shallow sulci. The subarachnoid veins were engorged. The surface of the brain was in general of a dull, rosy-grey colour, with numerous bright red, small vessels coursing over the convolutions. There was a small, diffuse, subarachnoid ecchymosis on the left frontal pole, and a few minute petechiæ on the orbital surface of both frontal lobes. The lateral ventricles each contained from 10 to 20 minims of clear fluid. Before exposure of the spinal cord the laminæ and spine of the first thoracic vertebra were removed, and the posterior roots of the first thoracic segment were ligatured. The subarachnoid space over the lumbar region was much distended by slightly opalescent, faintly blood-stained fluid. The veins of the vertebral canal were greatly engorged. The arachnoid membrane was thin and transparent.

The following appearances were seen on section.—In the cerebrum the cortex was dark, purplish-grey, firm, flat, and sharply defined from the white matter. The white matter was somewhat dry and showed numerous injected vessels from which blood oozed spontaneously. The grey matter of the basal nuclei, pons, and medulla had a purple tint. The anatomical pattern in the brain and bulb was normal; there were no petechiæ. The grey matter of the cervical cord was dark, slaty-grey, and showed injected vessels; the grey matter of the lumbar cord bulged and showed numerous delicate, injected vessels.

The fifth, sixth, and seventh cervical segments and the third lumbar segment were removed and placed in 20 per cent. glycerine for inoculation.

Microscopic examination.—The third lumbar and eighth cervical segments were fixed in 4 per cent. saline formalin, embedded rapidly in paraffin, and examined for the confirmation of the diagnosis.

(1) In the *third lumbar segment* the posterior roots, within the arachnoid space, and their vessels are free from infiltration. There is a little infiltration round the vessels and within the neural sheath of the anterior roots. There is great infiltration of the pia in the antero-lateral regions and slight infiltration in the dorsal region. The prolongation of the pia within the anterior fissure, and its continuation round the large branches of the anterior spinal arteries and veins within the cord are densely infiltrated. The adventitial sheaths of almost all the vessels which pass from the pia through the white matter, and of the larger vessels within the grey matter, are infiltrated. The majority of the capillaries within the grey matter show no adventitial infiltration. An epispinal space is only present in a few places; it is not infiltrated. Definite perivascular canals are very seldom present. When present they render the adventitial nature of the infiltration conspicuous. They frequently contain hyaline spheres, but rarely contain any cells. The vessels in the meninges and grey matter are engorged. There is a large patch of extra-adventitial infiltration in the white matter, close to the periphery of the cord, on the ventral side of the entrance of the right posterior root. There is slight diffuse infiltration in the ventral portion of the lateral white columns. Diffuse infiltration is extreme in the anterior horns and marked in the bases of the posterior horns. It is greatest in the right anterior horn. In this horn there is much vacuolation, the tissue being obviously softened. In the left horn there is also vacuolation, but this is more focal. In both anterior horns are conspicuous "cellular aggregations." In both anterior horns there is extreme degeneration and necrosis of the nerve cells. Many cells have entirely disappeared. In the posterior horns the majority of the nerve cells retain an angular shape, but complete or incomplete tigrolysis is present. Neuronophagia is in places very marked.

Cytology.—In the infiltration of the common sheath of the vessels in the anterior fissure and of their large intraspinal branches the majority of the cells are lymphocytes, the larger forms being most numerous. There are also a few lymphoblasts. There are many hyaline cells. A few of these cells are multinuclear. Many are phagocytic, containing pyknotic nuclear remnants. In the infiltration of the individual sheaths of the smaller vessels hyaline cells are relatively more abundant.

Leucocytes are extremely rare in the adventitia. One or two eosinophile leucocytes are present in most sections; neutrophile leucocytes are very rare. In the diffuse extra-adventitial infiltration there are many fixed and free "typical" glial cells and "elongated glial nuclei," and a few cells showing karyokinesis. Some cells indistinguishable from the lymphocytes in the sheaths are also present. The great majority of the cells are polyblasts, which resemble fat-granule cells. There are very numerous pyknotic nuclear remnants. Many of the polyblasts are phagocytic and contain these remnants. The cellular aggregations contain polyblasts, many of which resemble fat-granule cells or are phagocytic. Where the neuronophagia is slight the cells are chiefly free glial cells; where it is advanced, there are numerous polyblasts which both surround and infiltrate the degenerate nerve cell. Amongst the polyblasts one or two neutrophile leucocytes having pyknotic nuclei were found and one eosinophile leucocyte. No leucocytes containing specific granules were found in the diffuse infiltration. The central canal contains lymphocytes and large cells with pale indented or tortuous nuclei. The blood vessels contain relatively few white cells; the great majority of the white cells are lymphocytes.

(2) *The eighth cervical segment.*—The changes resemble those in the lumbar segment closely. There is little infiltration, however, of the pia. There are small hæmorrhages in the grey matter, especially on the right side, and hæmorrhage into infiltrated adventitial sheaths. In many sections a considerable number of nerve cells have escaped destruction on the left side. As in the lumbar segment, scarcely a single neutrophile leucocyte can be found outside the lumen of the vessels.

(3) *Sacral and upper and lower thoracic segments: medulla, mid-brain, and left central region of cortex.*—In order to obtain an idea of the extent of the lesion blocks containing these areas were cut and stained. Different degrees of characteristic infiltration were found in all.

The pieces of the lumbar and cervical cord were kept in 20 per cent. glycerine for seven days at room temperature, and then emulsified in saline and injected into a Macacus rhesus monkey on Oct. 4th, 1912. Eight days later the monkey developed facial paralysis, and two days later paralysis of the right leg. On Oct. 15th the symptoms were more marked, and the animal was killed by coal gas.

Strain A, Passage I.—Male Macacus rhesus No. 4.

Summary of necropsy (Oct. 15th, 1912).—"*Poisoning by carbon monoxide. Acute polioencephalomyelitis. Scar of trepanation wound. Chronic cutaneous ulcer over left malar bone.*"

Macroscopic examination of central nervous system.—In a shaven area on the brow there was a pink linear scar, 4 mm. long, just to the right of the middle line and 0·5 cm. above the nasion. The scalp was slightly adherent to the pericranium in this region. In the frontal bone, in the middle line and 1·1 cm. above the nasion, there was a pin-head pink area through which a fine probe could be forced into the cranial cavity; the inner opening of this aperture lay over the anterior extremity of the superior longitudinal sinus. The superior longitudinal sinus was empty; the other sinuses contained a little fluid blood. The outer and inner surfaces of the dura were smooth and glistening. The surface of the brain was smooth and yellowish-white; its sulci were sharply defined and contained cherry-red vessels. There were no hæmorrhages upon the surface of the brain. The brain felt firm. Each lateral ventricle contained about two drops of clear fluid. The arachnoid over the cisternæ magna and basalis was perfectly transparent, and there was no matting nor opacity of the meninges in the Sylvian fissures. Before complete exposure of the spinal cord the laminæ and spine of the first thoracic vertebra were removed, and the posterior roots of the first thoracic segment were ligatured. On cutting through the dura in the lumbar region the arachnoid was bulged very slightly by clear fluid. The inner surface of the dural theca was perfectly smooth, and there was no opacity of the arachnoid. The cord felt firm.

The following appearances were found on section. The cortex of both cerebral hemispheres was yellowish-grey, firm, flat, and sharply defined from the medulla; no vessels were visible therein. In the mid-brain the crura and tegmentum were white; the grey matter round the iter was pale grey; there were no visible vessels. The cut surface of the pons was a shade pinker, but vessels were not visible. The bulb near the posterior extremity of the olives was pink. In the second cervical segment the grey matter was bright pink, and minute vessels could just be detected therein. In the fifth cervical segment there was patchy injection of the grey matter; the injection was very marked at the base of the left posterior horn, and here there appeared to be punctiform hæmorrhages. The grey matter of the eighth thoracic segment was pale pink; of the tenth bright pink. The grey matter of the second lumbar segment was pink, and showed bright red dots at the base of the left posterior horn and in the lateral region of the right anterior horn; a red dot was also present in the white matter of the left lateral column. The sacral cord was very pale.

Segments from the cervical, thoracic, and lumbar regions were removed for inoculation.

Microscopic examination.—In order to verify the diagnosis three segments—the third lumbar, sixth thoracic, and third cervical—were embedded in paraffin and examined prior to a full microscopic investigation of the organs.

(1) *The third lumbar segment.*—There is no infiltration of the roots. There is a little infiltration of the sheath of some large veins in the subarachnoid space. There are considerable infiltration and slight hæmorrhage in the pia. The pial expansion in the anterior fissure is slightly infiltrated. A greater infiltration is present in the sheaths of vessels passing through the white matter, especially in the antero-lateral regions, and of vessels in the right posterior horn. Within the anterior horns comparatively few vessels show infiltration of their sheaths. Hæmorrhages are very conspicuous; the largest and most numerous are present in the left posterior horn and in the lateral region of the left anterior horn. Some anterior horn cells are surrounded by extravasated blood. There is only a slight diffuse infiltration of the grey matter. This contrasts sharply with the extensive neuronophagia. There is little evidence of complete disappearance of nerve cells, but almost all the nerve cells exhibit varying degrees of degeneration and necrosis. Several cells in the anterior horns are represented by granular masses surrounded and infiltrated by numerous round cells. There are also a few cellular aggregations which do not appear to be connected with neuronophagia.

Cytology.—The majority of the cells of the adventitial infiltration are lymphocytes. Small lymphocytes are present, but the average cell occupies an area equal to two red corpuscles. A few lymphoblasts are present, and there are some cells showing karyokinesis. There are several hyaline cells, but the difference between the hyalines and lymphocytes is less marked than in the other cases described above. Some of the smaller lymphocytes have an exceptionally abundant and deeply basophile protoplasm. There are, however, no true plasma cells. There are a very few pyknotic nuclear remnants, and phagocytosis is not seen in the sheaths. One or two eosinophile leucocytes are present. Neutrophile leucocytes are relatively few. Neutrophile leucocytes are frequently seen, however, immediately outside capillaries which have no infiltrated sheath. In the scanty diffuse infiltration there are considerable numbers of neutrophile leucocytes. Some of these are degenerate and contain pyknotic nuclei. There are also considerable numbers of pyknotic nuclei which apparently belong to glial cells. Many of the glial cells have very deeply stained nuclei. There are several cells containing karyokinetic figures. Where the infiltration round the nerve cells is slight the cells closely resemble free glial cells; where neuronophagia is advanced there are considerable numbers of neutrophile leucocytes in addition to polyblasts. The nuclei of the polyblasts show little polymorphism. In the cellular aggregations which are not obviously connected with neuronophagia many of the leucocytes are necrosed and the polyblasts are phagocytic. In others polyblasts, which have only slightly indented nuclei, are almost exclusively present.

(2) *The sixth thoracic segment.*—The adventitia of a few vessels close to the central canal is infiltrated. In many of the nerve cells of the anterior horns the Nissl's granules are clumped and irregularly arranged; the solution used for fixation, however, prevents stress being laid upon these changes.

(3) *The third cervical segment.*—There is a little infiltration round some vessels in the ganglion of the left posterior root and in the posterior root immediately distal to the ganglion. There is a very slight infiltration round the veins in the pia below the anterior fissure, in the dorsal extremity of the fissure, in the sheaths of a few vessels which cross the white matter in the lateral region and in the sheaths of some vessels in the anterior part of the anterior horns. There is more marked adventitial infiltration of one or two large branches of the anterior spinal artery and in the ventral part of the posterior septum. There is a slight diffuse infiltration in the anterior horns, the excess of cells being almost confined to the periphery of the nerve cells. There is no actual invasion of nerve cells. The nerve cells with very few exceptions show tigrolysis and many are vacuolated. In the central canal there is some albuminous material in which lie a few red corpuscles and large round cells. The vessels are engorged, and there are hæmorrhages round vessels in the base of the posterior horn.

The cells which infiltrate the sheaths are chiefly large lymphocytes; small lymphocytes, lymphoblasts, a few hyalines, and several eosinophile leucocytes are also present. There are only a few pyknotic bodies and no neutrophile leucocytes. The cells round the nerve cells and in the diffuse infiltration are almost all free typical glial cells. Several cells show karyokinesis. There are a few polyblasts with slightly indented nuclei. There are very few pyknotic bodies. No neutrophile leucocytes are present. Round some capillaries there are small collections of cells which are not enclosed by a collagenous membrane; in these collections there are some lymphocytes. There are relatively few white cells within the vessels; among these are several eosinophile and neutrophile leucocytes.

(4) In additional sections adventitial and diffuse infiltration were found in the *sacral cord, brain-stem,* and *cerebral cortex.* The greatest diffuse infiltration was found in the region of the nucleus of the seventh cranial nerve on the left side.

CASE 4.—A boy, aged 2¼ years, of Bethnal Green, E. This patient was admitted to the London Hospital, under the care of Dr. Robert Hutchison, at 3 P.M. on Oct. 24th, 1912, and died at 1 A.M. on Oct. 25th.

Family history.—The patient's father and mother had been married 15 years and both enjoyed good health. The patient was the youngest of six children: (1) girl, aged 13, and (2) girl, aged 11, both alive and healthy; (3) died from "pneumonia" at 3 months; (4) boy, aged 7, alive and healthy; (5) aged 4; and (6) patient, aged 2¼.

Personal history.—The patient was a fine baby. He was fed on the breast until 16 months old. In April, 1912, he was ill three days with measles. He then enjoyed good health until the onset of the present illness.

On Sunday, October 20th, he was quite well in the morning; in the evening he seemed "funny and frightened," he did not vomit and complained of no pain. On the Sunday night he slept well. On Monday, the 21st, he still seemed "queer," and was "hot and feverish." He was given an aperient powder and his bowels were opened. He played all day and made no complaints. There was no running from the nose and no sore-throat. On the 22nd he refused to play and desired to lie still, though he could stand and do all that he wanted. On the 23rd he was worse, more feverish, and complained of a sore-throat. In the afternoon he was taken home and put to bed. In bed he lay very still and did not move, but could sit up and move all his limbs. On Oct. 23rd and 24th he slept fairly well, and complained of pain on movement and of great thirst. At 8 A.M. on the day of admission (*fifth day of illness*) he suddenly became worse, he became weak and languid and no longer moved his limbs. At 11 A.M. he started to breathe badly and became blue. Four hours later he was admitted to hospital.

The other children at home were all well, and the patient's mother had no knowledge of any other children ailing at the same time, and did not know of any other cases of paralysis amongst her relations, friends, or neighbours.

On admission the patient was a fine, healthy-looking child. The face and lips were blue. The throat was red and injected. The lips were covered with sordes, and dry mucus filled the pharynx. There was no enlargement of lymphatic glands. The temperature was 102° F., the rate of the pulse 130 per minute, and the rate of respiration 48 per minute. No abnormal signs were found in heart, lungs, and abdomen. The patient complained of no pain. He answered questions readily

His mentality was unimpaired. He had no fits. There had been no vomiting since the 20th, the day of onset.

Cranial nerves.—The eyes moved naturally. The pupils reacted briskly to light and on accommodation, but they showed rhythmical movements of contraction and dilatation in a moderate light, although there was no change in the amount of light falling upon the eyes. The face was symmetrical and moved naturally. The tongue could be protruded well; it was coated with a thick white fur. The child swallowed readily. The discs and fundi were normal. Hearing was unaffected.

Motion.—The legs, lower intercostal muscles, and belly muscles were completely paralysed, and all the back muscles below the clavicles were atonic. The child arched backwards when lifted by the middle of his back. The right arm below the shoulder was paretic; the left arm could be moved slightly. On both sides the diaphragm acted fairly well. The two upper intercostal muscles seemed to contract synchronously with the diaphragm and the sternomastoids during inspiration. No loss of sensation could be detected.

The knee-jerks, ankle-jerks, and abdominal reflexes could not be elicited on either side. On attempting to elicit the plantar responses a slight downward movement of the toes occurred. The skin over pressure points readily developed an erythema which disappeared in about five minutes after the removal of the pressure. There was incontinence of urine without retention. The child died 10 hours after admission from respiratory failure.

Summary of necropsy (No. 712; Oct. 25th, 1912).—"*Respiratory failure. Acute polioencephalomyelitis. Collapse of lower two centimetres of right lower lobe of lung. Congestion of liver; great congestion and œdema of kidneys. Tuberculosis; caseous gland in lower lier of mesentery, nearer cæcal border. Three agonal intussusceptions in small intestine. Streaks of altered blood in stomach. Threadworms in cæcum, appendix, and ascending colon. Small submucous hæmorrhage in injected urinary bladder. Atheromatous patch in aortic cusp of mitral valve. Slight prominence of lymphoid tissue throughout body. Mucous catarrh of nose. Slight blepharitis. Pale, well-developed, and well-nourished child with slightly sunken orbits.*"

Macroscopic examination of central nervous system.—The fontanelles were closed. The dura was adherent to the calvaria along the superior longitudinal sinus. The superior longitudinal and other venous sinuses contained fluid blood. The convolutions on the cerebral hemispheres were slightly flattened, the sulci being somewhat shallow. The brain appeared and felt large and bulky. Each lateral ventricle contained about half a drachm of fluid, which appeared slightly opalescent when drawn up into a pipette. The laminæ and spine of the first thoracic vertebra were removed, and the posterior roots of the first thoracic segment were ligatured before exposure of the whole cord. On incision of the dura over the lumbar region the arachnoid was bulged outwards by about an ounce of fluid. This fluid, when examined in a test-tube, was seen to be slightly milky. The inner surface of the dural theca was smooth; it showed one pin-point hæmorrhage at the level of the emergence of the seventh left thoracic root.

The following appearances were seen on section. The cerebral cortex in the right central region was of a purplish colour and sharply defined from the white medulla; numerous fine vessels were visible in both cortex and medulla—they were more conspicuous in the latter. In the mid-brain the tissue was firm, the grey matter was grey; there were visible vessels in the crura and tegmentum. There was no injection of a cut surface through the centre of the pons. At the level of the centre of the olives the grey matter in the floor of the ventricle was purple and a few injected vessels were present. The cut surface of the second cervical segment was flat and firm; its grey matter was grey; blood oozed from small vessels. In the fourth cervical segment the grey matter was pink and showed numerous injected vessels. The right branch of the anterior spinal artery was either greatly injected or surrounded by hæmorrhage. In the fourth cervical segment the grey matter was pink and dotted with injected vessels; the cut surface was flat. In the seventh segment the surface bulged slightly, the pattern appeared slightly blurred, and numerous engorged vessels were visible in both grey and white matter; there was a punctiform hæmorrhage in the grey matter on the right side. The grey matter of the third thoracic segment was paler pink; injected vessels were visible therein. In the eighth thoracic segment injection of vessels was very marked on the right side. The grey matter of the first lumbar segment was slightly swollen and pink and contained injected vessels. In the second lumbar segment the grey matter was pinkish-yellow, softer and more swollen; it contained injected vessels. The cut surface of the fourth lumbar segment was injected and bulged considerably.

A large slice from the centre of the right hemisphere together with the fourth and seventh cervical, the third and eighth thoracic, and the second and fourth lumbar segments, were placed in 33 per cent. glycerine for inoculation.

Microscopic examination.—Portions of the fourth lumbar, twelfth thoracic, and sixth cervical segments were fixed in 4 per cent. saline formalin and embedded in paraffin for immediate examination.

(1) *The fourth lumbar segment.*—There is a little infiltration of the arachnoid and of the adventitia of the vessels accompanying the spinal roots. The pia is markedly infiltrated in places on the anterior and lateral aspects of the cord. The pial extension in the anterior fissure is infiltrated; the infiltration is greatest in the dorsal extremity of the fissure and in the common sheaths of the vessels branching from the fissure. There is also infiltration of the sheath of almost all the vessels which pass through the white matter, and of the sheaths of numerous vessels within the grey matter. There is no adventitial infiltration of many capillaries in the anterior horns. There is a very great diffuse infiltration of the anterior horns. There is also considerable diffuse infiltration of the posterior horns and of the white matter immediately surrounding the anterior horns.

In the anterior horns there are many cellular aggregations; on the left side these are very large and occupy extensive areas. Engorgement of the vessels in the grey matter is very conspicuous, and there are some small hæmorrhages. The nerve cells in the anterior horns are almost all completely necrosed and represented by rounded hyaline masses; in the posterior horns they show varying degrees of degeneration, and here slight neuronophagia can be seen. The central canal is empty.

Cytology.—In the infiltration of the sheaths the majority of the cells are lymphocytes. Lymphoblasts are not numerous. Hyalines are present in considerable numbers, and there are a few phagocytes. Pyknotic bodies are not numerous. There are considerable numbers of eosinophile leucocytes; neutrophile leucocytes are exceedingly scarce. One plasma cell was seen. In the diffuse infiltration there are large numbers of fixed and free typical glial cells and elongated glial cells. There are also many polyblasts. There are very few neutrophile leucocytes. There is a considerable number of pyknotic bodies, and some of these can be recognised as remnants of neutrophile leucocytes. A few eosinophile leucocytes are present. In the cellular aggregations the cells are almost all polyblasts. Many resemble fat-granule cells; others contain pyknotic nuclear remnants. Very few neutrophile leucocytes can be found; they are degenerate. The cells surrounding the nerve cells are free typical glial cells and polyblasts; leucocytes are absent. There are considerable numbers of neutrophile leucocytes in the vessels; eosinophile leucocytes are also present.

(2) *Twelfth thoracic segment.*—There is a little infiltration of the arachnoid. The pia is almost completely free. The infiltration of the pia in the anterior fissure is confined to its dorsal extremity. There is marked engorgement. Several vessels in the white and grey matter show adventitial infiltration. There is diffuse infiltration throughout the grey matter on the left side; on the right it is confined to the ventro-lateral region of the anterior horn and a small area in the posterior horn. The nerve cells in the left anterior horn are represented by hyaline bodies, in the left posterior horn they show central tigrolysis. In the right anterior horn a few within the area of infiltration are shrivelled and degernerate; others in the margin of the infiltration are of good shape and show sharply defined Nissl's granules. Some cells which are not implicated in the infiltration show severe degeneration. The cells of the different infiltrations are very similar to those in the lumbar segment. There is very little neuronophagia, and neutrophile leucocytes are not present round the nerve cells.

(3) *The sixth cervical segment.*—There is a little infiltration in the sheath of some vessels in the dura. There is marked infiltration within the neural sheath and round some of the vessels of the left posterior root as it crosses the arachnoid. The pial infiltration is almost confined to the dorsal portion of the expansion within the anterior fissure. The vessels are greatly engorged, and there are some small hæmorrhages. There is infiltration of the sheaths of almost all the vessels which cross the white matter and of vessels in the anterior and posterior horns. There is much diffuse infiltration of both anterior horns, the right posterior horn, and the base of the left posterior horn. There is an area of œdematous rarefaction near the centre of the left anterior horn. Cellular aggregations are fewer and smaller than in the lumbar segment. The majority are found on the left side. In the left anterior horn the nerve cells have disappeared, with the exception of a few which are completely necrosed; in the right anterior horn there are many more nerve cells, but they show varying degrees of shrinkage and degeneration. There is considerable neuronophagia on this side.

The infiltration of the sheaths is very similar to that of the lumbar segment. Several of the hyalines are phagocytic; one contains a neutrophile leucocyte in which granules are still present. In the diffuse infiltration more neutrophile leucocytes are recognisable, but they are very degenerate. In the cellular aggregations and amongst the neuronophages a few degenerate neutrophile leucocytes can also be identified.

In the infiltration of the left posterior root neutrophile leucocytes greatly preponderate. Within the vessels there are some eosinophile and considerable numbers of neutrophile leucocytes.

(4) In additional sections adventitial and diffuse infiltration were found in the *medulla, pons, basal ganglia,* and *cerebral cortex.*

A piece of the lumbar cord was emulsified in saline and injected into a Macacus monkey on Oct. 26th, 1912. Six days later the monkey was seen to be less lively than usual, and on examination was found to have considerable weakness of both arms and legs. The animal showed a great disinclination to move from one spot to another, or to jump. The general weakness gradually increased, and the animal was killed by coal gas three days after the onset of symptoms.

Strain B, Passage I.—Female Macacus; weight 3 lb. 9½ oz. No. 7.

Summary of necropsy (Nov. 4th, 1912).—"*Poisoning by coal gas. Acute polioencephalitis. Scar of trepanation wound. Helminthiasis.*"

Macroscopic examination of central nervous system.—There was a shaven area over the left eyebrow, and in this was a scar, measuring 8 mm. long, and lying 1 cm. behind and 3 mm. to the left of the nasion. Beneath this there were some adhesions between the scalp and pericranium. A probe could be thrust through a small hole in the calvaria, 1 cm. behind and 1·2 cm. to the left of the nasion. Beneath the hole in the calvaria there was a small perforation of the dura. The dura was tense; its inner surface was smooth and pink. The superior longitudinal and other venous sinuses contained a little fluid blood. The surface of the hemispheres was smooth. The sulci were well marked. The vessels of the leptomeninges were cherry-red. There was a slight adhesion of the dura to the left frontal lobe at the site of the perforation, and beneath this was a yellow spot on the cortex, 1 mm. in diameter. The posterior roots of the first thoracic segment were ligatured before exposure of the whole cord.

The following were the appearances on section. The cortex in the centre of the right hemisphere was pale yellow and the medulla pure white. After fixation in formalin a small red, wedge-shaped area was seen below the yellow spot on the left frontal pole at the site of inoculation. In the mid-brain and pons, posterior to the fifth nerve, the white matter was white and the grey matter grey, and there was no visible injection. Between the second and third cervical segments the grey matter was pink, and there was a bright red point in the base of the left posterior horn. Between the fourth and fifth segments there was a fine, bright red line at the base of the posterior horn. Between the sixth and seventh segments the grey matter was pink and there were visible vessels. Between the eighth cervical and first thoracic segments the grey matter was of an even pink. At the sixth and eighth thoracic segments the grey matter was pink, and minute vessels were visible. The cut surface of the first lumbar segment bulged and was somewhat soft; the grey matter was pale pink. In the third lumbar there were

fine injected vessels in the white matter, and one small spot suggesting a hæmorrhage. At the junction of the fourth and fifth lumbar segments the cut surface was flat and slightly soft; numerous vessels were visible and blood oozed from these. The grey matter of the sacral cord was pink.

Portions from the right hemisphere, medulla, and from the cervical, thoracic, and lumbar cord were placed in 33 per cent. glycerine for inoculation.

Microscopic examination.—The first sections, taken from the cord for the purpose of confirmation of the diagnosis, showed no infiltration. The full series of portions, fixed in 4 per cent. saline formalin, was therefore embedded and examined.

In the following segments of the cord there is no infiltration: *First sacral; fifth and first lumbar; tenth, fourth, and third thoracic; eighth, seventh, and second cervical.* Groups of *ganglia* from the lumbar, thoracic, and cervical roots are also devoid of infiltration. The vessels are engorged in many segments, and there are small hæmorrhages in the base of the posterior horns in the fifth lumbar and seventh cervical segments.

Slight adventitial infiltration was found, however, in the *first cervical* segment, and a greater or less adventitial infiltration and occasional small areas of extra-adventitial infiltration were found in the *pons* at the level of the superficial origin of the sixth, seventh, and eighth nerves; the *central and fore end of the mid-brain; the hind end, centre, and fore end of both basal ganglia;* and in the cerebrum in the *right frontal, the centre of the left Rolandic and the left frontal regions.*

Sections of the *right Rolandic, right temporal, right occipital, left temporal, and left occipital* regions show no infiltration.

(1) The section of the *left frontal region, which included the perforation made by inoculation*, deserves special description. The section includes three convolutions. There is a small wound in the cortex of the central convolution. This wound contains in its centre red corpuscles, a considerable number of neutrophile leucocytes, numerous granule cells filled by pigment, and a few phagocytes containing nuclear remnants. Its border is formed by a broad zone of large, vacuolated cells, which merge into free, typical glial cells. Beneath the wound vessels with dense adventitial infiltration pass down into the medulla. Near the wound there is diffuse infiltration between these vessels. The adventitia of many other vessels in the convolution is infiltrated. The adventitia of a few vessels in the cortex of one of the neighbouring convolutions is also infiltrated. These vessels are close to the junction with the central convolution. The pia shows considerable infiltration, especially round the veins and smaller vessels.

The adventitial infiltration consists chiefly of large lymphocytes; there are also lymphoblasts and a very few small lymphocytes. A few eosinophile leucocytes and some pyknotic bodies are also present. In the diffuse infiltration there are fixed and free typical glial cells, elongated glial nuclei, and occasional eosinophile leucocytes. Round some fine capillaries, in which the adventitia is not infiltrated, large lymphocytes are present. Pyknotic nuclei and nuclear remnants are found in, and at a distance from, the diffuse infiltration. There is no neuronophagia.

(2) *In the other sections in which there is infiltration* the infiltration is for the most part confined to sheaths; there are very few, small, areas of extra-adventitial infiltration. In the first cervical segment the adventitial infiltration is very slight, and there is no diffuse infiltration with the exception of some emigrated neutrophile leucocytes. The cells in the sheaths in the different segments are chiefly large lymphocytes; hyalines are present in considerable numbers in the centre of the mid-brain, a section in which the infiltration is relatively great. Cells showing karyokinesis are also seen in this section. Eosinophile leucocytes are present in all the sections and are very abundant in the mid-brain. Neutrophile leucocytes are few as a rule, but relatively large numbers are present in the first cervical segment and the pons. Pyknotic bodies are present in the sheaths, but phagocytes were not found. In the extravascular infiltration emigrated eosinophile leucocytes are in some sections more numerous than neutrophiles. Pyknotic nuclear remnants are found at a distance from any infiltration. Isolated cells showing karyokinesis are also occasionally found in the glia. Neuronophagia was found in one cell in the centre of the mid-brain. The vessels contain considerable numbers of eosinophile leucocytes. In one vessel a neutrophile leucocyte is undergoing karyokinesis, and shows "daughter stars."

Transmission in series.—It was found possible to transmit both the strains in series, and to date (Dec. 20th, 1912) both have reached their third passage through the monkey. In every instance a microscopic examination of the brain and spinal cord showed the lesions characteristic of acute anterior poliomyelitis. The symptoms induced and pathological findings will be detailed in a future communication.

Discussion.—The histological changes in the central nervous system of the two patients, Cases 3 and 4, from whom the disease was successfully transmitted, do not differ essentially from other acute cases obtained this year, from the single fatal case of 1911, and from Dr. Head's sporadic case of 1910. Further, they are essentially similar to those described by numerous observers in sporadic and epidemic cases, both in England and abroad. The character of the illness of the monkeys, and the changes found in them on post-mortem examination, show conclusively that they were suffering from a disease similar to that of the children from whom they were infected. There are certain minor differences in the histology—for instance, the greater prominence of neuronophagia in the case of the monkeys—but the differences are of degree rather than of kind. It is of interest to note that the virus from Case 4 produced an almost pure polioencephalitis in its first passage in the monkey, whilst in later passages the most pronounced changes were in the cord.

The failure to obtain a positive inoculation with material from Case 2 is explicable on the grounds that the patient had recovered from his attack of infantile paralysis, as is shown by the histological examination. Death resulted from an intercurrent disease—diphtheria.

In Case 1 the failure is more difficult to explain. The problem why material from one case of acute poliomyelitis and not from another should produce the disease in monkeys is at present occupying the attention of numerous pathologists. Flexner in his Huxley lecture states that about one-half of the cords of cases submitted for examination can be successfully inoculated into monkeys. Roemer obtained successful inoculation in three out of five attempts, whilst Levaditi obtained three out of four.

When the histological changes in Cases 1, 3, and 4 are compared, it is found that in Cases 3 and 4 the diffuse infiltration and the destruction of the cord are greater, pyknotic nuclear remnants, phagocytes, and fat-granule cells are more numerous, and neutrophile leucocytes are far fewer. Comparison of the histological changes in different cases, and especially in different portions of the cord in individual cases, shows that the emigration of neutrophile leucocytes is a relatively early phenomenon, and precedes signs of profound destruction of the nervous tissue. The emigrated leucocytes rapidly degenerate and disintegrate, whilst polyblasts become more numerous. The fragments of the degenerate leucocytes constitute one of the chief sources of pyknotic bodies, and are to a large extent engulfed by polyblasts. As disintegration of the nervous tissue becomes marked more polyblasts assume the form of fat-granule cells. Probably, therefore, the histological peculiarities of Case 1, when compared with Cases 3 and 4, merely indicate that in Case 1 the changes in the tissue were in an earlier stage.

In such a case, in which the early stage of the disease is not only indicated by the character of the histological changes but by the death of the patient within 48 hours of the onset of symptoms, the presumption is that active virus was present in the cord. It has been suggested that the distribution of the virus in the nervous system may be irregular; inasmuch, therefore, as a portion of the cervical cord was alone used for inoculation the virus might thus have been missed. This, however, is extremely unlikely, because the section which was taken from the portion sent for inoculation showed marked histological changes, and similar changes were present in all other sections from the cervical region. Again, the failure of inoculation might be attributed to deterioration of the virus as the result of the cord having been kept for 11 days in the ice chest. It has, however, been shown that a cord kept under similar conditions can retain its infectivity for many weeks.

The question of the insusceptibility of the monkeys may also be ruled out of court because the cord was inoculated into three monkeys (Macacus rhesus). From observations on the experimental disease in these monkeys it is known that the use of such a number is sufficient to exclude any individual insusceptibility. Again, the fact that several months later one of the three monkeys was successfully inoculated with the disease conclusively proves that at least one susceptible animal was used. It is, therefore, most likely that the cause is to be found in a variation of the pathogenicity of the virus itself.

In the neighbourhood of the London Hospital, as previously stated, the disease has been on the increase in late years. Not only have the cases admitted to the hospital increased in number, but the records of the Pathological Institute show that there has been an increase in mortality. Between 1907 and 1911 no case of uncomplicated poliomyelitis came to post-mortem examination; in 1911 three cases were examined, but in one only was the death (September) directly due to the disease; in 1912 four cases were examined, and in all death was directly due to the disease (April, July, September, and October). A fifth fatal case from which the cord, fixed in formalin, was kindly forwarded by Dr. Arthur J. Browne, occurred at Newport, Essex (October), a district embraced by the London Hospital.

A mild epidemic appears, therefore, to have gradually developed from sporadic cases. That the epidemic was mild is not only shown by the clinical features of the majority of the cases, but by the feeble pathogenicity of the virus when

transmitted to monkeys. The virus, unlike that which has been raised from epidemics in America and on the continent, has not yet produced a fatal disease in the monkeys.

Cases 3 and 4, therefore, occurred in a mild epidemic, whilst Case 1 was sporadic. This may be the explanation of the variation in the pathogenicity of the virus. The work of other investigators has shown that it is extremely difficult to transmit the virus from sporadic cases, whilst in epidemics transmission is successful in the great majority of instances.

We suggest, therefore, that in sporadic cases the virus is feeble, and the occurrence of the disease is due to a hypersusceptibility of the individual attacked, whilst an epidemic only results when the virus has become exalted either by a series of passages through susceptible individuals or from some other cause unknown. It seems probable that the virus has been gradually exalted during the last three years in the neighbourhood of the London Hospital, until a mild epidemic occurred in 1912. It will, therefore, be of great interest to note whether the pathogenicity increases in 1913.

We are greatly indebted to Dr. Henry Head for allowing us to publish his case, to the members of the medical staff of the London Hospital for permission to make use of the clinical notes on the patients under their care, to Dr. E. G. Fearnsides, medical registrar, for valuable assistance, and to the administrators of the London Hospital Medical College Research Fund for a grant towards the expenses.

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December, 1912.

TWO CASES OF PANCREATIC CYST.

BY W. F. CHOLMELEY, F.R.C.S. ENG.,

HONORARY SURGEON TO THE GENERAL HOSPITAL, WOLVERHAMPTON.

CASE 1.—The patient, a male, aged 19, came under my care with symptoms of intestinal obstruction. He had absolute constipation and had vomited. The abdomen was not much distended, there was no vomiting or marked tenderness, nor could a "lump" be felt. The attack had come on quite suddenly with acute pain in the epigastrium, and had been followed by vomiting. Enemata and purgatives were tried, but without effect. After four days, during which time every endeavour was made to get an action of the bowels, I decided to explore the abdomen, even though the patient did not look as ill as cases of intestinal obstruction usually do. I looked upon the case of one of enterospasm.

The abdomen was opened in the middle line below the umbilicus, and there appeared to be nothing wrong. There was no excess of fluid, no injection of the peritoneum, nor were the intestines much distended. The wound was closed and the patient taken back to bed. The next day the bowels opened quite naturally. The urine was tested twice before the operation, and no sugar was found. A day or two after the operation the patient began to complain of attacks of colic in the epigastric region. At first nothing abnormal could be felt, but the epigastrium began to swell quickly, and became tender. By the end of 10 days a definite tumour made its appearance in the epigastrium, and caused a good deal of pressure on the transverse colon. During the attacks of colic the bowel could be seen moving over the lower part of the tumour, and the colic disappeared as soon as the contents of the bowel had passed along with a gurgling sound. The urine was again tested and found to contain sugar. I then diagnosed a pancreatic cyst, and decided to open the abdomen and drain.

Sixteen days after the first operation I opened the abdomen in the middle line above the umbilicus, and over the most prominent part of the tumour. The cyst was found to be pushing its way between the stomach and the transverse colon. The general peritoneal cavity was packed off by gauze swabs, and the cyst tapped with a full-sized trocar and cannula. A large amount of thin, yellowish-coloured fluid was drawn off, full of what looked like cholesterin crystals. There did not seem to be any definite cyst wall beyond the thickened peritoneum of the lesser sac. This was sutured to the parietal peritoneum and a large bore rubber tube fixed in the cyst. The wound was sewn up to the tube.

Little need be said about the further progress of the case. Within 24 hours the fluid draining away from the cyst caused intense irritation of the skin, which was with difficulty kept within bounds. The patient made an uninterrupted recovery, the sinus taking three months to heal. The glycosuria disappeared in a fortnight. About the fourth day after the operation there was a sudden rush of bile-stained fluid from the cyst, which flooded the dressings and soaked the bed. For some time after this the discharge contained a good deal of bile. Unfortunately the full notes of this case have been lost, so that the gaps have to be filled in from memory.

CASE 2.—The patient, a lady aged 75, came under my care in December, 1911. The history obtained is as follows. The patient had an attack of acute abdominal pain about the second week in September. This lasted about four hours. There was no vomiting, and the pain was chiefly in the left hypochondrium and right iliac fossa. Shortly after this attack she began to notice that her clothes were feeling tighter round the abdomen, and she suffered from thirst. A second attack of pain occurred at the end of November, lasted much longer, and was accompanied by vomiting, and more or less intestinal obstruction for five days. This was relieved by repeated doses of calomel, and oil enemata given through a long tube. She had had some diarrhœa and what was thought to be indigestion for a few weeks before. The pain was situated in the same place as in the former attack. After this second attack there was increased thirst.

I first saw the patient on Dec. 22nd. She then looked extremely ill, the abdomen was so swollen that she was unable to fasten her clothes properly, the tongue was very dry and coated, and she complained very much of thirst. The patient found it impossible to sit in one position for a long time, and could not sit upright at all on account of the pain it caused, no doubt due to the pressure on the cyst. On the evening of the same day she had an attack of very acute pain in the abdomen, chiefly in the epigastrium. On examination, a swelling was felt occupying the whole of the epigastrium and about the size of a full-term child's head. The tumour was smooth, tense, and elastic, not very tender, and was dull over the upper part, and faintly resonant over the lower. Though the pain was evidently very acute, there was no collapse, and the pulse remained good. The acute pain lasted about three hours, but she was not quite free from all pain until the next morning. The urine was tested and found to contain sugar, 10 gr. to the ounce. There was no polyuria. I looked upon the case as one of pancreatic cyst, but on account of the patient's extreme weakness did not feel justified in advising operation. On Dec. 25th Mr. E. Deanesly very kindly saw her with me, confirmed my diagnosis, and advised no operation. He suggested a slightly restricted diet and codeia $\frac{1}{2}$ gr. twice a day.

The patient gradually improved under this treatment, and though there were at times some colicky pains, she had no acute attack. The amount of sugar slowly decreased, and at the beginning of the third week in January had disappeared. The cyst gradually grew larger, and began to give trouble by pressing on the stomach or colon, I could not be certain which. During the third week in January the restricted diet began to pall and irritate the patient, who became anxious for something to be done to relieve her. As her general condition had greatly improved, and there was no longer any glycosuria, I decided to operate.

On Jan. 21st the patient was anæsthetised by Dr. E. W. Strange, a mixture of chloroform and ether being used, and assisted by Mr. A. H. W. Hunt I opened the abdomen in the middle line above the umbilicus and over the most prominent part of the tumour. The cyst was seen to be pushing

its way above the stomach. As the slightest attempt to get below the stomach to drain the cyst brought on the most alarming collapse, it was thought best to drain above the stomach, and finish the operation as quickly as possible. After carefully tearing through the gastro-hepatic omentum, I tapped the cyst with a large-sized aspirating needle, and drew off 3 pints of chocolate-coloured fluid. When no more fluid would come away, the opening in the cyst was carefully enlarged, until I could introduce my finger. A good deal of débris could be felt in the cyst, a large quantity of it being fairly firmly adherent to the lower part of the cyst wall. Some of it was removed for examination, and looked like a mixture of sloughs and old blood clot. The wall of the cyst was ⅛ in. thick, and seemed as if it would peel out with ease. I did not try to peel it out, as the patient's condition would not allow of a long operation, and I was well aware of the pitfalls awaiting me should I attempt it. The cyst wall was sutured to the abdominal wall, a large rubber tube fixed in, and the wound sewn up.

The patient stood the operation very well and had very little pain after. The discharge very quickly caused intense irritation of the surrounding skin. As was expected, sugar appeared in the urine immediately after the operation and remained until Feb. 1st. On Jan. 29th there was a sudden rush of a large amount of bile-stained fluid mixed with mucus. This was repeated about a week later, and each time soaked through the dressings and flooded the bed. For some time small sloughs and other débris came away when dressing the patient, being brought up by syringing with hydrogen peroxide. On Feb. 19th a large slough, 3 inches long and 1 inch broad, came away. The patient was allowed up in a fortnight. No diabetic diet was given after the operation, and the codeia was stopped when the sugar disappeared. The further progress of the case was excellent until March 8th, when she was seized with an attack of acute bronchitis which nearly proved fatal. Glycosuria appeared again when the bronchitis started and did not again disappear. The patient was allowed out of bed on May 2nd and went away on July 11th. It was unfortunate that in this case the cyst could not be drained below the stomach, at its most most dependent part, as it was bound to take very much longer to fill up. When the patient left there was still a long sinus present.

The fluid in the first case was proved to contain pancreatic secretion, but I have not the report by me. The reports on the second case I append, and were made by the Clinical Research Association:—"The fluid is of a dark colour, it is faintly alkaline, has a specific gravity of 1010, and an albumin content of 0·7 per cent. There is no evidence of proteid digestion or fat splitting, but there is conversion of starch. The centrifugalised deposit is considerable in amount, and consists of many blood discs, a small number of leucocytes, an occasional epithelial cell, and much fat débris, part of which occurs as neutral fat, and in fatty acid crystals. The specimen is non-purulent in character, but a fair number of Gram-negative bacilli are seen to be present. On culture these are coliform in type."

The report on the piece of débris is:—"This material is far too necrosed for a definite opinion to be given. We feel morally certain, however, that it is pancreatic tissue. There are many areas which suggest fat necrosis, and some parts suggest outlines like those of pancreatic acini. There are many masses of cells filled with blood pigment, and in the centre there is a fibrous nodule containing a duct. It is difficult to see why so large a fibrous mass should form round a pancreatic duct, but that is clearly the suggestion. There is no evidence of malignant growth."

The first case was undoubtedly a pseudo-cyst, the attack simulating intestinal obstruction being caused by the rupture of an old cyst into the closed lesser peritoneal sac. I did not drain directly the cyst, but the lesser sac. The second case I look upon as a true pancreatic cyst. There seemed to be a definite cyst wall ⅛ in. thick, which would have peeled out, to some extent at least, with great ease—not what would be expected of the peritoneum of the lesser sac.

The etiology of the second case I take to be as follows. A large retention cyst had formed as the result of chronic pancreatitis. The fibrous nodule round a duct seen under the microscope suggests the chronic pancreatitis. The attacks of acute pain were caused by hæmorrhages into this cyst, while the attack at the end of November was one of acute pancreatitis, most probably hæmorrhagic, involving that part of the pancreas to which the cyst was more directly connected. There had no doubt been some very acute pancreatic mischief, or how are the sloughs to be explained? I do not think that the acute pain on the evening of Dec. 21st was caused by another hæmorrhage, as the cyst was not more tender than it had been, and the pulse never failed in the least. There was, however, every reason for a hæmorrhage at that time, as the patient had been a railway journey of 70 miles that day.

Both patients at the present time are doing very well, though the second case still has a sinus and a slight amount of glycosuria.

Wolverhampton.

TWO CASES OF PANCREATIC CYST WITH ACUTE SYMPTOMS.

BY CLAUDE FRANKAU, M.B. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO ST. GEORGE'S HOSPITAL.

CYSTS in connexion with the pancreas are not in themselves very uncommon; the onset of acute and urgent symptoms as the first indication of the presence of such cysts is, however, of sufficient rarity to warrant a note on two such cases which have recently been under my care at St. George's Hospital.

CASE 1.—The patient, a female, aged 46, was admitted into St. George's Hospital on Sept. 24th, 1911, and gave the following history. For three weeks she had had abdominal pain of a spasmodic character; this at first was not severe, and was mainly referred to the navel; later it became more marked, and for the four days prior to admission had been almost continuous, and had shifted to the right hypochondriac region. In addition to the increased severity of the pain there had been also almost incessant vomiting of bile-stained fluid in small quantities and absolute constipation for five days. Her health had previously been excellent; there had been no jaundice. The only previous medical history of any importance was that of a somewhat doubtful abdominal injury some 20 years previously.

On examination the patient was an extremely well-nourished woman. The expression was anxious and she was clearly in pain; at frequent intervals small quantities of bile were vomited. The tongue was furred; temperature 100° F. and pulse 104. The abdomen showed considerable general distension, but moved well; on palpation an extremely tender, rounded swelling could be felt somewhat below and immediately to the right of the navel. This was quite localised and fixed; it was dull to percussion, with an area of resonance above and below it. The size of the swelling was roughly that of a man's fist. The remainder of the abdomen showed no abnormality apart from some general tenderness. As enemata produced no result and the symptoms persisted operation was decided upon four hours after admission.

Operation.—A three-inch incision was made over the centre of the swelling through the outer border of the right rectus; on opening the peritoneum a small amount of free fluid escaped; there was no peritonitis. The swelling was found to be a tense retroperitoneal cyst presenting below the transverse mesocolon, and apparently of pancreatic origin. After packing off the intestines with gauze the cyst was incised, and 45 oz. of dark-brown fluid were evacuated. At the bottom of the cyst a hard, rounded body of the size of a walnut was found and removed; this proved to be composed of layers of dried blood clot. A large drainage tube was then sewn into the cyst and the abdominal wall partly closed; a gauze plug was also left in below the tube. The fluid from the cyst was deeply blood-stained and contained a large amount of albumin; the reaction was alkaline. Trypsin was present in considerable quantity, as well as a diastatic ferment.

The urine passed before the operation contained a trace of albumin, and also gave a faint reduction with Fehling's solution; this reduction persisted for about four weeks and then disappeared; the urine at the present time is quite normal.

The patient made a good recovery from the operation, and

apart from some irregular pyrexia, for which no cause could be found, showed no untoward symptoms. The discharge from the cyst was at first very profuse, as much as five pints being collected in the 24 hours; later the amount diminished to a considerable degree, but the sinus showed no sign of closing. No trypsin could be found after the first three weeks, and the skin around the sinus remained healthy throughout. On Jan. 11th, 1912, she was sent to the Atkinson Morley Convalescent Hospital; the discharge still persisted and at times was blood-stained. On Feb. 20th a considerable amount of hæmorrhage occurred from the sinus, which had a small short tube in it; three days later very severe hæmorrhage occurred, which could not be controlled, and she was accordingly readmitted into hospital.

The patient then showed signs of severe hæmorrhage, with extreme pallor, restlessness, sweating, and a small, rapid, very feeble pulse. It was obvious that an immediate attempt would have to be made to check the bleeding. Accordingly, under intravenous ether anæsthesia, administered by Dr. J. Blumfeld, the cyst was freely exposed and completely marsupialised by means of stout silk ligatures; the shallow cavity was packed with gauze wrung out in 1 per cent. formalin. The bleeding was apparently coming from the granulations covering the surface of the cyst cavity, and not from any large vessel, as had been feared. The patient made a rapid recovery from the effects of the hæmorrhage, and the discharge from the cyst gradually diminished; it has, however, never quite ceased and still persists to the extent of about half an ounce a day from a tiny sinus. The woman's general health is excellent, and she has been doing her household work for the last nine months.

CASE 2.—The patient, a boy aged 14, was admitted into St. George's Hospital on June 9th, 1912, with the following history. Four weeks previously, as the result of a fall across a gate, he injured his left side, fracturing two ribs; in addition to the fractures some grave intra-abdominal injury was also suspected, as for a time he was profoundly collapsed. No further symptoms developed, however, and in about ten days he appeared to be in good health again. About a fortnight later he began to complain of pain in the left hypochondrium, with nausea and vomiting at times; no local physical signs could at first be found to account for this, but some days later a swelling was detected beneath the ribs on the left side. On the day of admission this swelling, which previously had remained stationary in size, was noted to have become very much larger, and the general symptoms became grave. There had been no previous illness of any note, and the boy's general health had been good.

On examination the boy looked extremely ill; the skin was cold and clammy, the tongue dry and furred; temperature 100° F., pulse 120. The abdomen showed slight general distension, with impaired movements and some bulging in the left hypochondrium. To palpation the parietes were resistant, and pain was complained of, especially over the bulging area, where a rounded tumour could be felt. This tumour was fixed and quite dull to percussion all over; the dulness also extended upwards as high as the sixth rib in the mid-clavicular line; the tumour did not fill the loin and could not be obtained bimanually; there was no movement on respiration. A small amount of free fluid could be detected in the right flank. There were no abnormal signs in the chest and the apex beat was not displaced upwards. An examination of the urine made before the operation showed no abnormality, except what was then thought to be a very doubtful faint reduction of Fehling's solution.

Operation.—A 4-inch incision was made through the upper part of the left rectus. On opening the peritoneum a quantity of thin, blood-stained fluid escaped; the visceral peritoneum was found to be deeply injected, and the intestines were markedly distended. An examination of the great omentum revealed numerous small spots of fat necrosis; a small piece of omentum removed for microscopical examination confirmed this diagnosis. On further investigation the swelling was found to be a tense retroperitoneal cyst which was presenting above the transverse mesocolon, and over the surface of which the stomach was tightly stretched; the transverse colon was displaced downwards into the lower part of the abdomen. As it did not seem possible to approach the cyst from above, the transverse colon was drawn upwards over the swelling and the mesocolon incised, exposing the lesser sac and the under surface of the cyst, which partly obliterated this cavity, but was situated behind it. On incising this cyst three pints of blood-stained fluid escaped; a large drainage-tube was then sewn into the opening, and the abdominal incision was closed. The fluid from the cyst was practically identical with that found in Case 1, and contained a large amount of trypsin. Further examination of the urine showed a definite trace of dextrose estimated at 0·25 per cent.; this disappeared after the eighteenth day, and has never been found since in repeated examinations.

A large amount of fluid drained away for the first few days, the discharge then diminished, and the wound had entirely healed in three weeks. There was a considerable amount of distension, with flatulence and hiccough for the first four days; this was overcome by the use of turpentine enemata and eserine sulphate given hypodermically in 1/100th gr. doses. Apart from the distension no untoward symptoms developed, and the boy at the present time is in good health.

Remarks.—In the majority of cases cysts of the pancreas, whether arising spontaneously or as the result of an injury, are not associated with acute symptoms, but are somewhat insidious in their course. The interest of these two cases lies mainly in the acute nature of the symptoms, and the difficulty of making a diagnosis before operation.

In the first case a tentative diagnosis of appendicitis, with abscess and partial obstruction from adhesions, was made. The difficulty in this case was increased by the obesity of the patient, which is not common in pancreatic disease, and apart from the somewhat high position of the swelling, the symptoms and signs markedly resembled the above condition. At the operation no definite pathological condition apart from the cyst could be found, and presumably the pain and obstructive symptoms were due to pressure produced by the rapid enlargement of the cyst.

In the second case the history of comparatively recent injury of a severe nature made several diagnoses possible. From the position of the swelling extending high up under the costal margin, and from the presence of free fluid in the peritoneal cavity with signs of a diffuse peritonitis, a partial rupture of the spleen, with recurrence of the hæmorrhage and leakage into the general peritoneal cavity from this cause, was suspected. The operation showed that the acute symptoms and the free fluid were due to leakage from the cyst producing a diffuse peritonitis with fat necrosis similar to that found in cases of acute pancreatitis. Under the circumstances it is remarkable that the peritoneal symptoms disappeared so rapidly after operation.

The examination of the urine, in each case performed before the operation, revealed a faint reduction of Fehling's solution, but this reduction was so slight that at the time it was ignored; later investigations showed that the reduction was due to dextrose, as proved by fermentation tests. The importance of the presence of a reducing body was not apparent till operation, and if it had been realised it is possible that a more satisfactory diagnosis might have been made.

The pathology of the cysts necessarily cannot be absolutely determined; in all probability they were in both cases examples of the prepancreatic type of cyst—i.e., they were situated behind the posterior parietal peritoneum in front of the pancreas, which formed part of the posterior wall of the cyst. There is no doubt that they were not so-called cysts of the bursa omentalis, since the cavity of the lesser sac was free in each case. The presence and persistence of pancreatic ferments in the cyst fluid afford further proof of an intimate connexion with the gland.

The recent injury in the second case was undoubtedly the cause of the condition. In the first case the injury was so remote that it can hardly be regarded as the causative agent; that the cyst had been present for a long period is made probable by the presence within it of the laminated blood clot forming a blood ball.

Complete "marsupialisation" of the cyst was practically impossible in both cases in the first instance; it was successfully performed at the second operation in the first case, and it is certain that if it could have been performed at the first operation the severe hæmorrhage which occurred might have been avoided.

South-street, Park-lane, W.

LARGE RENAL CALCULUS ASSOCIATED WITH SARCOMA OF THE KIDNEY.

BY DOUGLAS DREW, B.S. LOND., F.R.C.S. ENG.,

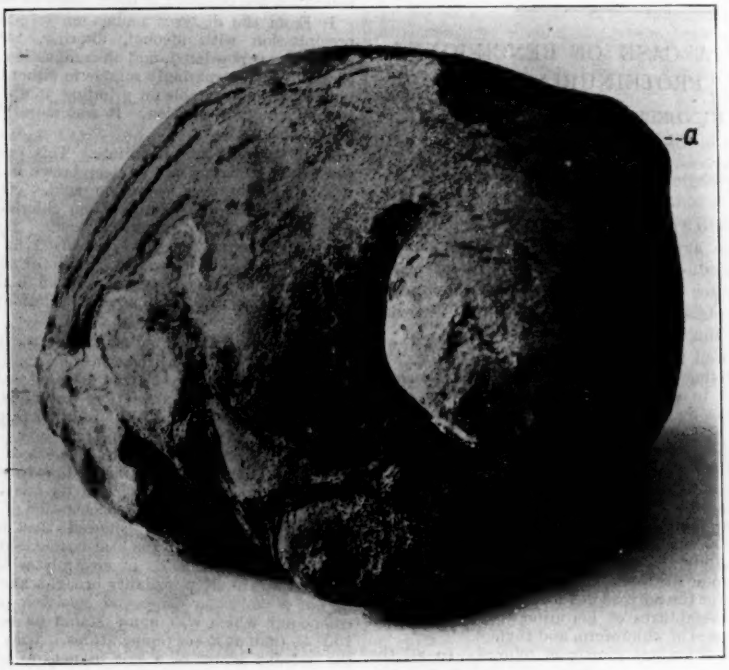
SURGEON TO THE HOSPITAL FOR WOMEN, SOHO.

THE following is a brief account of the patient's illness. A married woman, aged 46, was admitted to the Hospital for Women, Soho, on July 19th, 1912, in a very emaciated and feeble state; she stated that she had been gradually getting thinner and weaker for six months, and had suffered much with pain in the right side, but had continued to work until a fortnight before admission. The swelling in the abdomen had been noticed for three months, and on several occasions blood had been passed in the urine. On admission the right side of the abdomen was occupied by a large tumour extending from beneath the ribs down to the pubis; the anterior edge extended rather beyond the middle line; it was uniformly hard, smooth, and very tender. The total quantity of urine varied between 28 oz. and 40 oz., and usually contained a small quantity of pus and a little blood. The temperature varied between 99° and 102·6° F. No X ray examination was made, as the patient was too ill to be moved out of bed for the purpose.

On July 31st the tumour was explored through the usual oblique incision in the loin. At the posterior part of the wound it was found that the tissues were inflamed and very adherent to the kidney, while at the anterior part there was a soft mass of deep reddish-purple colour suggestive of a growth. A trocar was inserted into the organ, and a quantity of creamy pus evacuated. The stone was found tightly wedged into the pelvis of the kidney, and considerable difficulty was experienced in delivering it through the wound owing to its size. After its removal several handfuls of what appeared to be broken-down blood clot were removed from the pelvis of the kidney. I have no doubt, in the light of subsequent events, that this material was in reality necrotic growth filling the pelvis. The patient's condition was so unfavourable that a primary nephrectomy was out of the question, so a gauze plug was inserted to check some free oozing, together with a drainage-tube, and the patient was returned to bed. For a few days after the operation the patient appeared to be progressing satisfactorily, the temperature fell to normal, and she expressed herself as feeling much better; but by August 9th it was obvious that she was failing, and she died on the 15th.

The calculus weighed 14¼ oz. in the wet state; it was of a rounded shape and measured 10 in. in one circumference and 9½ in. in another. On one side there were five truncated processes where it fitted into the calyces, and on the opposite side was a nipple-shaped process corresponding to the ureter (see figure). It was of soft phosphatic material and thickly coated with soft débris; it closely resembled in size and shape an average-sized clenched fist.

Necropsy.—The whole of the right half of the abdomen was invaded by semi-solid necrotic material, which was shut off from the abdominal cavity by peritoneal adhesions. The area of invasion extended from the under surface of the liver to Poupart's ligament; the cæcum and ascending colon were pushed over towards the middle line. On clearing away this breaking-down tissue the remains of a large disorganised kidney were found, which was so firmly fixed to the surrounding structures that it could only be separated from the vertebræ and iliac fossa by using the knife. The other abdominal organs were normal, and there were no secondary growths; the left kidney was about twice the usual size, but otherwise appeared normal. The remains of the kidney showed a dense fibrous wall which on section was composed of fibrous tissue with yellow areas; the outline of the calyces was visible, and the pelvis was greatly enlarged and the wall thick and fibrous.



Large phosphatic renal calculus, weighing 14¼ oz. when wet, and 11 oz. when dry. (Natural size.) *a*, Ureteric end.

I am much indebted to my friend, Dr. T. G. Stevens, for examining the specimen and giving me the following report of the microscopic structure of the wall of the kidney and of the soft necrotic tissue which was so abundant: "Section from the dark brown, soft material. This is too degenerate to yield any definite result, but it is evidently cellular and composed of necrosing growth. The other section, made from the dense fibrous tissue with yellow areas and soft white growth, is better preserved, and shows that the growth in the main has the characters of a large spindle sarcoma; the yellow areas are patches of hæmorrhagic and

necrotic growth. Remnants of renal tissue with tubules and glomeruli are found in the dense fibrous wall."

Remarks.—Renal calculi of such large dimensions are extremely uncommon, as the condition usually causes a pyonephrosis long before such a size is reached. Marmaduke Sheild has recorded a case in THE LANCET * which weighed 1 lb. 9 oz. in the wet state, and 1 lb. ½ oz. when dry; and he pointed out how slight the symptoms had been, although the calculus must have been present for a long time. It was the same in the case now recorded; the patient actually continued at her work until a fortnight before admission to the hospital. I have recently seen an X ray photograph of a remarkable case, which was under the care of Hurry Fenwick, of two stones in the same kidney which weighed after removal by operation 1 lb. 12 oz. when dry. In the case now recorded the stone weighed 11 oz. when dry.

The onset of the sarcoma probably dated from shortly before the appearance of the tumour. I have been unable to find any record of a sarcoma arising in a kidney so affected; it is not unreasonable to suppose that the irritation of the stone in some way brought on the growth.

Wimpole-street, W.

NOTE ON A CASE OF BENCE-JONES PROTEINURIA.

BY JOHN HENDERSON, M.D., CH.B. GLASG., F.R.F.P.S. GLASG.,

ASSISTANT PHYSICIAN, ROYAL INFIRMARY, GLASGOW; ASSISTANT TO MUIRHEAD PROFESSOR OF MEDICINE, GLASGOW UNIVERSITY.

THIS note refers to a case of which I published the clinica details some time ago in THE LANCET.[1] The detailed laboratory investigation of the urine took up considerable time, and thereafter there was unavoidable delay in the publication of the laboratory findings,[2] hence the somewhat belated nature of this communication.

It may be as well to recall the main points of the case. Clinically the striking features were the anæmia, cachexia, and wasting, with, in addition, an unusual urinary condition. The diagnosis was doubtful. The presence of malignant disease was at first suspected, but careful and repeated examination of the patient failed to detect any evidence of it. There was, further, no evidence of disease of the bones. The blood picture was that of a fairly severe secondary anæmia. The case was regarded as one of chronic nephritis of some standing, and probably of the "diffuse" variety, accompanied by a considerable degree of anæmia. The patient, unfortunately, decided to return to his own home in the country, where he died, and no post-mortem examination was obtainable. For the purpose of further urinary investigations, however, several litres of his urine were obtained and preserved in presence of chloroform and thymol.

The urinary condition was shortly as follows. In all the specimens examined the colour was pale amber, and the reaction distinctly acid. The specific gravity averaged about 1015. The daily excretion of urine varied between 1500 and 2000 c.c. The average acidity, as estimated by the Folin method = 28 c.c. N/10 NaOH per 100 c.c. Total protein, as estimated by Esbach's method, excreted in 24 hours varied between 15 and 20 grm. When the urine was subjected to the ordinary heat test for albumin an abundant white and rather curdy precipitate was at once obtained well below boiling point. This did not dissolve when boiling point was reached, though there was a partial solution. It, however, completely dissolved on the addition of a drop of 10 per cent. acetic acid. On contact with nitric acid in the cold a copious white precipitate was obtained, which disappeared on warming and reappeared on cooling.

It was at once apparent from these tests that one had to deal with a protein other than ordinary albumin and globulin. In an ordinary albuminous urine the coagulation point may be placed somewhere about 70° C., and the coagulum shows no tendency to disappear on raising the temperature to boiling point. In the present case coagulation began in the urine at 52·5° C., and was complete at 58° C. On raising the temperature it apparently partially returned to solution.

Positive results were obtained with all the ordinary tests for protein: biuret (marked), Liebermann (marked), Millon and tryptophane reactions. Molisch's reaction was very doubtful. The usual blackening was obtained on boiling the urine with lead acetate in alkaline solution.

The protein was precipitated by all the ordinary reagents which precipitate proteins. It was fully precipitated on half saturation with ammonium sulphate, but gave only a slight haze when half saturated with sodium or magnesium sulphate. With alcohol its reaction was unusual, as the usual precipitate in the cold readily dissolved on warming, to reappear on cooling. For further investigation a large quantity of urine was precipitated by means of half saturation with ammonium sulphate and filtered. The precipitate was dialysed against running water, and the products obtained behaved quite as in the original urine. The precipitate was dialysed for a further nine days till free from salt, and it again showed the same properties. The dried substance was obtained in three different ways, viz.:—

1. From the dialysed ammonium sulphate precipitate, by precipitation with alcohol, filtering, then drying. The material was powdered, and on combustion gave a mere trace of ash. It was sparingly soluble in either cold or hot water, but rather more soluble on grinding it up with 1 per cent. sodium chloride solution. It was more readily soluble in acid solutions.

2. From the heat precipitate. This precipitate browned in the air, becoming quite a deep brown in 12 hours. It was dried in vacuo over sulphuric acid. It was not readily soluble in water and dilute sodium chloride solution, though much more soluble in mineral acids. Both this and the preceding preparation slowly dissolved in the cold in 2 per cent. caustic soda or potash. Both dried substances were insoluble in either cold or hot alcohol in all concentrations. Their coagulation point in aqueous solutions was found to be about 56° C.

3. From the dialysed material by evaporation to small bulk in vacuo at 40° C., then drying over sulphuric acid. This form was much more soluble in cold distilled water. Its coagulation point in aqueous solution was 58° C., though slight hazing was observed at 55° C. In other respects it resembled the previous dried substances.

Further investigations were suggested by an extremely interesting paper by Hopkins and Savory[3] on the Bence-Jones protein. They dealt with its relations to variations in reaction and of the salt concentration of the fluid in which it was dissolved. They showed that the characteristic solubility at 100° C. of the heat-coagulated protein was due largely to the influence of electrolytes in solution. This solution was in all probability brought about by the formation of a molecular compound betwen protein and salt, a compound which was more stable at temperatures near 100° C. than at lower temperatures. They also showed that the solvent power of a salt in neutral solution rose with increase in valency in either its acid or basic constituent, and, further, that with the increase in valency in the acid or basic constituent of a salt the solvent capacity showed also a greater relative increase than does the aggregative (coagulative) power.

Extensive investigation along these lines with the substance obtained in the present case revealed the fact that it behaved in a very similar fashion to that described by Hopkins and Savory. Owing to the scantiness of the available material, however, it was found to be impossible to test all the salts used by these workers. The influence of the three potassium phosphates was tested in the hope that the results might prove of additional value, as the variation in urinary acidity is usually ascribed to variations in the mono- and di-acid phosphates, though Folin denies that these phosphates act in this way. It was further hoped that it might afford some explanation of the variations obtained by different workers in the reactions of the Bence-Jones protein, or allied bodies, in the urine. Very marked variations, however, were obtained, and from these points of view the results were disappointing.

* THE LANCET, Oct. 15th, 1904, p. 1074.

1 Henderson: THE LANCET, April 16th, 1910, p. 1069.

2 Cathcart and Henderson: Journal of Pathology and Bacteriology, vol. xvii., 1912.

3 Hopkins and Savory; Journal of Physiology, Cambridge, 1911, vol. xlii., p. 189.

When I published the clinical history of this case, and the urinary investigations carried out, the conclusion had then been arrived at that the substance present in the urine was not the original Bence-Jones protein, but one allied to it, as, though offering points of resemblance, it exhibited certain differences in its reactions to any protein hitherto described. Since the publication of the work of Hopkins and Savory on this subject, and the confirmatory tests applied in the present case, this protein is now regarded as identical with the substance investigated by these writers. The slight differences found may almost certainly be ascribed to differences in the physical character of the solutions. I now, therefore, place this case on record as one of Bence-Jones proteinuria.

I have again to thank Professor D. Noël Paton and Dr. E. P. Cathcart, Glasgow University, for the facilities afforded for this investigation and for their guidance and help throughout.

Glasgow.

PTOMAINE-PRODUCING BACTERIA IN THE HUMAN INTESTINAL FLORA.

BY D. M. BERTRAND, M.D., SC.L. PARIS;

AND

A. BERTHELOT, M.D., SC.L. PARIS.

(*From the Metchnikoff Laboratory in the Pasteur Institute, Paris.*)

Two years ago Dr. Ackermann[1] succeeded in obtaining from histidine by putrefaction a base which has been identified with β-imidazolethylamine prepared at first synthetically by Windauss and Vogt.[2] Since then G. Barger and H. Dale[3] in England, and Kutscher[4] in Germany discovered this amine in ergot, where it is one of the most active principles. The physiological action of β-imidazolethylamine has been fully studied by H. Dale and P. Laidlaw[5] in rodents and carnivora; they noted that a dose of 0·5 mgm. injected in the external saphenous vein of a large guinea-pig (about 900 grm.) caused death quickly with symptoms very similar to those obtained in anaphylactic shock. They killed a medium-sized rabbit by injection of 4 mgm. in the ear vein, with the same symptoms. With subcutaneous injections of larger doses the rate of respiration was increased, and then occurred defæcation and micturition, with prostration and some degree of narcosis; gradually recovery took place. In the cat an injection into the long saphenous vein of 2 to 10 mgm. caused vomiting, salivation, and defæcation, and at the same time the respiration became laboured, the animal showing signs of prostration and light narcosis with constriction of the pupils. Same action with bigger doses injected subcutaneously; recovery set in gradually.

We experimented on the same animals with hydrochloride of β-imidazolethylamine prepared by the action on histidine of putrefactive bacteria, for which we are indebted to the kindness of F. Hoffmann-La Roche, and had exactly the same results. We tried then to note the physiological action of this amine in monkeys (Macacus sinicus and Macacus cynomolgus), weighing 1100–1300 grm., by intravenous injection into the posterior saphenous vein.[6] The effects obtained with these monkeys were very similar to those obtained with the carnivora—that is, vomiting and diarrhœa, profuse salivation, and a well-marked respiratory impediment. The lethal dose was 65 mgm.—that is, about 50 mgm. per kilo of animal. The monkey showed the ordinary symptoms, more marked; then followed a full paralysis of the posterior limbs, and after a while of the anterior ones; at the same time spasmodic contraction of the diaphragm. The animal was sprawling, the head sank on the table, and it died in 20 minutes. Post mortem the lungs were found distended; the heart stopped in diastole.

Barger and Dale[7] isolated β-imidazolethylamine from intestinal extract, and they thought that this ptomaine in the intestinal mucous membrane could be due to the resorption of the base produced in the intestinal digestion by the action of some kinds of bacteria on histidine set free by enzymic or microbial hydrolysis of proteins. Control of this hypothesis being valuable in man to throw some light on the pathogenesis of different symptoms of so-called auto-intoxication, we tried to isolate from human stools bacteria able to produce β-imidazolethylamine or β-imidazol-α-amino-propionic acid. With the ordinary technique of isolating bacteria it would have been very difficult to get from intestinal flora micro-organisms with such a specificity of biochemical action; but we succeeded rather easily by the general technique to isolate the aminolytic bacteria that we suggested during the last year.[8] In this case we used a selective medium containing: water 1000, K_2SO_4 0·20 grm., $MgSO_4$ 0·20 grm., K_2HPO_4 0·50 grm., KNO_3 0·25 grm., $CaCl_2$ 0·02 grm., hydrochloride of histidine 1·50 grm. Using the physiological properties, so characteristic of β-imidazolethylamine, we studied at first the toxic action of the pure cultures on histidine of the different microbes we succeeded in isolating by this way. Injected intravenously into guinea-pigs, all but one of them showed the characteristic symptoms of acute intoxication by the amine, death ensuing in a few minutes.

Though the toxicological examination of these cultures on histidine was rather convincing of the presence of β-imidazolethylamine, we tried to identify the base; for this we added ten volumes of alcohol to the toxic fluid, which produced a precipitate we separated by filtration. The filtrate was evaporated until a dry residue remained, which was dissolved in water, rendered isotonic, and then injected in the vein of a guinea-pig; death ensued with ordinary symptoms. The toxic substance was soluble in alcohol and was probably of the nature of an alkaloid. Not considering this proof sufficient, we tried to extract β-imidazolethylamine. All the culture media on histidine were treated by the process described by Ackermann.[10] At last, a picrate crystallised, melting at 237° C., and the yellow crystals were quite similar to those of the chemically pure amine. This salt was decomposed to give a hydrochloride, soluble in water, which gave an intense reaction with p. diazobenzene sulphonic acid, characteristic reaction of histidine and closely related derivatives. The same solution injected in the vein of a guinea-pig caused death in a few minutes with the peculiar symptoms observed with this pure base.[11]

We then carried out a complete study of this micro-organism, which, by its morphology and general cultural characters, is very nearly related to the bacillus of Friedländer and bacillus lactis aerogenes—that is, Gram-negative, capsulated bacillus, with a well-marked action on a great number of sugars and polyhydric alcohols. By fermentation of glucose it gives, as B. lactis aerogenes does, lactic, acetic, and succinic acids, slight quantity of ethyl alcohol, and minute quantities of formic acid and acetylmethylcarbinol; it reduces nitrates and has no action on neutral red. Milk is clotted in two days, and, like the micro-organisms of this group, has no proteolytic action, but a peptolytic one; it does not produce indol nor phenol from tryptophane or tyrosine. But its biochemical action on amino-acids, compared with those of different strains of bacillus of Friedländer and B. lactis aerogenes from the Pasteur Institute collection, or isolated by ourselves, is much more marked; its affinity for organic substances containing nitrogen is so special that it can be separated from them and be called bacillus aminophilus intestinalis. Neither Friedländer bacillus nor B. lactis aerogenes, indeed, sowed in histidine media, were able to produce β-imidazolethylamine, and their aminolytic properties are far less great. Probably it may be possible to obtain by subcultures in appropriate media organisms having this aminophilic character peculiar to this strain.

[1] Ackermann: Zeitschrift für Physiologische Chemie, lxv., p. 504, 1910.

[2] Windauss and Vogt: Berichte der Deutschen Chemischen Gesellschaft, xl., p. 3691, 1907.

[3] Barger and Dale: Proceedings of the Chemical Society, xxvi., p. 128, 1910; Journal of Physiology, xl. (Proceedings of the Physiological Society, p. xxxviii., 1910).

[4] Kutscher: Centralblatt für Physiologie, xxiv., p. 163, 1910.

[5] Dale and Laidlaw: Journal of Physiology, xli., p. 318, 1910.

[6] A. Berthelot and D. M. Bertrand: Comptes Rendus de l'Académie des Sciences, July 28th, 1912.

[7] Barger and Dale: Journal of Physiology, xli., p. 499, 1910–11.

[8] A Berthelot: Comptes Rendus de l'Académie des Sciences, July 24th, 1911.

[9] A. Berthelot and D. M. Bertrand: Comptes Rendus de la Société de Biologie, July 29th, 1911.

[10] Ackermann: Loc. cit.

[11] A. Berthelot and D. M. Bertrand: Comptes Rendus de l'Académie des Sciences, June, 1912.

When this microbe is grown in a nutrient medium containing per litre of water PO_4HK_2 2 grm., $MgSO_4$ 1 grm., and minute quantities of $CaCl_2$ it grows perfectly well, when nitrogen is provided by KNO_3, $(NH_4)^2 SO_4$, NH_4NO_3, or succinate of ammonium. It is able also to get carbon and nitrogen necessary for its life from glycocolle, cystin, tyrosine, tryptophane, alanine, leucine, histidine, glutamic acid, aspartic acid, and phenylalanine. Many other substances than amino-acids are destroyed by this B. aminophilus intestinalis, and so we remarked that all the following bodies may provide it with nitrogen and carbon or nitrogen only when carbon is furnished by glucose: oxamide, urea, urethane, guanidine, creatine, asparagine, glucosamine—piperidine, collidine—allantoïne, alloxane, caffeine, morphine, quinine, pilocarpine, hordenine—ethylenediamine, tetramethyl enediamine, p. oxyphenylethylamine, imidazolethylamine—amygdaline—glycyltyrosine, pentaglycine, luceylglycine. As it can split off carbon dioxide from histidine to give β-imidazolethylamine, we studied carefully its action on tyrosine and tryptophane, from which amino-acids it produces p. oxyphenylethylamine and indolethylamine by the same process.

We have seen, then, that this B. aminophilus intestinalis gives β-imidazolethylamine from histidine when it gets its nitrogen from peptone or a mixture of mono and diamino-acids obtained by hydrolysis of casein, but it is quite impossible to find a minute quantity of this amine when nitrogen is provided by a mineral salt of ammonium. When the nutrient medium is composed of histidine and the ordinary mineral salts without any nitrate, it is impossible to find imidazolethylamine in the cultures, but from these media we were able to obtain imidazolpropionic acid. In peptonised culture media with histidine the microbe produces β-imidazolethylamine, which does not disappear if it is left for a week or more in the 37° incubator; the ptomaine is destroyed when it is the sole substance in the medium able to provide the micro-organism with the nitrogen and carbon necessary for its life.[12]

From all these facts we may conclude that this B. aminophilus intestinalis has well-marked saccharolytic and aminolytic properties. Varying the different nutrient substances with the exception of the amino-acid, the micro-organism may remove the carboxyle group; when this amino-acid is the only substance containing nitrogen and carbon, it is able to show both properties at the same time. We have seen, indeed, that it can get its nitrogen and carbon from various organic molecules. As this micro-organism splits off carbon dioxide very easily from amino-acids in various conditions of media, it seems possible then, to try to supplement the few ideas we have at present on the production of ptomaines in the intestinal tract and to study their acute and chronic action in the human organism.

We succeeded in obtaining from human fæces two other bacteria, one of them rather different from this B. aminophilus intestinalis formerly studied, which micro-organisms can produce imidazolethylamine by the same process. It was, indeed, very probable that this B. aminophilus was not the only one in the intestinal flora able to produce such an action. These micro-organisms have only been isolated from patients suffering from chronic auto-intoxication with some intercurrent intestinal disorder.

The point particularly interesting is that it has always been impossible to get a growth from fæces of people enjoying very good health, exactly as happened in the cases where we isolated formerly "tyrosinolytic" bacteria.[13] We may conclude that by the very simple technique we proposed more than a year ago we have been able to isolate from the human intestinal tract micro-organisms capable of producing a very active base—namely, β-imidazolethylamine—from histidine; further, its isolation does not require more than three days, and frequently we can obtain a pure culture in less than 48 hours.

[12] A. Berthelot and D. M. Bertrand: Ibid., July, 1912.
[13] A. Berthelot and D. M. Bertrand: Ibid.

BRITISH RED CROSS SOCIETY.—The annual meeting of the County of London branch of this society will be held at Grosvenor House, Upper Grosvenor-street, W. (by permission of the Duke of Westminster), on Friday next, Feb. 28th. Viscount Esher will take the chair at 4 o'clock.

THE THERAPEUTIC ACTION OF SPLENIC EXTRACT

AND ITS APPLICATION IN THE TREATMENT OF TUBERCULOSIS.

BY HENRY R. HARROWER, M.D.,

LATE PROFESSOR OF CLINICAL DIAGNOSIS, MEDICAL DEPARTMENT, LOYOLA UNIVERSITY, CHICAGO, U.S.A.

THE original work of Dr. Charles Bayle,[2] of Cannes, France, has stimulated my interest in the use of spleen substance or extract in tuberculosis, and while the literature on this subject is still very meagre, a limited personal experience, coupled with that of several correspondents in the United States, France, Italy, and Russia, convinces me of its importance. Since tuberculosis is essentially a wasting disease, a vital part of its treatment is the attempt to increase the nourishment of the body, thereby enhancing its resisting powers. Hitherto this has been attempted by careful attention to diet and, in many cases, a *régime* which has come to be termed "hyperalimentation." I certainly believe that fully as much harm as good has been accomplished by the extremes of feeding that have resulted. Toxæmia due to putrefying proteid has frequently undone much of the good that the other treatment may have accomplished; and while in some cases benefit has been derived from the increased food ingested, many others have suffered inconvenience and disadvantage from the resulting indigestion.

For nearly nine years Bayle has used spleen preparations in tuberculosis, and in his latest communication,[6] which was read before the International Congress of Tuberculosis at Rome, April, 1912, he concludes:—

> I feel authorised by my results to call splenic opotherapy a specific treatment for tuberculosis. It is specific from the therapeutic viewpoint because it modifies the soil, rendering it less suitable as a medium for the culture of the bacillus of Koch. It is specific from the practical viewpoint because it manifests all the function and rapidity of action of a specific medication. Employed in convalescents it prevents tuberculosis by increasing the mineral content of the tissue (*en reminéralisant le terrain*). Employed in confirmed cases of tuberculosis it cures them.

In an earlier communication[5] Bayle refers to "150 cases treated by me in which I have noticed 146 showing the unquestionable and rapid effects of the treatment. Among those which I have been able to follow a sufficient length of time to acquire some conviction I note 75 per cent. of cures, some of which were in a very advanced stage and regarding whom I had no hope to begin with."

In no disease have so many and such varied remedies been recommended as in tuberculosis, and the mere number alone is evidence of their unsatisfactory results. Time and again our hopes have been raised, to be as frequently rudely dashed to the ground. One therefore accepts with considerable reserve such enthusiastic statements, no matter how thoroughly they may be backed up by clinical results. While many have considered Bayle's experiences as "too good to be true," there is no doubt that a more general trial of spleen preparations in tuberculosis will be both interesting and profitable.

Unfortunately, the most recent books on the internal secretions—notably the exhaustive monograph by Biedl[10]—make no reference whatever to the internal secretions of the spleen; and Swale Vincent[11] gives this subject only four lines in his new book. In fact, opinions on the subject have been so difficult to obtain that the results of my researches in the literature have been collated here. Possibly these eminent writers have omitted to refer to the spleen because it is not really a glandular organ, and is not presumed to have any other than its well-known hæmopoietic function. Other investigators have expressed their doubt as to the hormone-producing powers of the spleen. Professor Osborne,[24] of Yale University, says:—

> From a histologic standpoint and from the standpoint of what is known of the physiology of the spleen, and from the fact than man and animals can live after the spleen has been extirpated, it seems doubtful if this organ furnishes an internal secretion.
>
> When the spleen is removed, the lymph glands do its work. After such removal there is an increase of the lymphocytes in the blood and a decrease of red corpuscles, as well as a reduction of the hæmoglobin, but in a few weeks the blood becomes normal.

Histologically the spleen cannot be included with the

glands or ductless glands, as its structure does not consist of epithelial cells.

Hutchison, in his Goulstonian lecture,[26] mentions the following functions of the spleen :—

> It is a filter to remove foreign particles from the blood and also the débris of red and white cells. It is the seat of formation of lymphocytes and, in a lesser degree, large mononuclear leucocytes. During intra-uterine life it has a part in the formation of red cells, but there is no evidence that this continues after birth.

Hutchison further emphasises his belief in the limited view of the splenic functions in his excellent little book on physiology, in which he says[27] :—

> The spleen is usually classed in text-books of physiology amongst the ductless glands. If by a "gland," however, one means an organ with secretory functions, then the term is hardly applicable, for whatever its part in the economy of the body, the spleen certainly does not secrete.

And this in spite of the experiments of Herzen, Bellamy, and a dozen others, reference to which will follow.

It is believed by some, however, that the spleen produces certain secretions which, like those of the thyroid, adrenal, or pancreas, are passed directly into the blood to influence both the producer's own function and that of organs remote from it. From the experimental work which has been done one gathers that the above statements of Osborne and Hutchison, together with the presumed opinions of authors already referred to, are incorrect.

The earliest discovery of the influence of the spleen on the pancreatic function was by Professor Schiff.[42] His original ideas, however, were faulty, and to his successor, A. Herzen,[25] professor of physiology at the University of Lausanne, must be given the credit of having definitely settled this question. His experiments were most convincing, and proved that the spleen acts as a tryptogene by means of some unknown substance which it proliferates and which is carried by the blood to the pancreas. This work has been duplicated by his associate Bellamy, whose experiments at Lausanne corroborated Herzen's ideas of the relations of the spleen and pancreas. He concludes that[8] "the inactive zymogen granules present in the cells (of the pancreas) receive from the spleen in the form of an 'internal secretion,' the agent with which to elaborate ..... trypsin." The blood carries this product to the pancreas in its solid elements. The jejunal mucosa also furnishes a similar tryptic activator, which is produced quite independently of the spleen. Bellamy[7] writes further regarding this, "without any reference to the possible and perhaps equally important manner in which the spleen acts in other departments of the animal economy, I propose to consider the spleen in the light of a powerful and, indeed, essential factor in the pancreatic digestion of proteids"; and he follows this up with a convincing and comprehensive review of his work and that of his colleagues at Lausanne.

Hedin's experiments[24] demonstrated the presence in the spleen of two proteolytic ferments easily destroyed by heat, the one active in acid media and the other in alkaline. Rettger[33] also has injected directly into the circulation of splenectomised dogs an aqueous extract of spleen, and has demonstrated a definite rise in the trypsin coming from the pancreas. Studies on the relation of the spleen to pancreatic function have been made by numerous other physiologists, notably Pachon and Gachet,[35] Camus and Gley,[12] Frouin,[21] Laguesse,[28] and Schäfer.[41]

It has been proved that the protective powers of the organism in part are dependent upon the presence in the leucocytes of a certain amount of active trypsin, and it is believed that phagocytosis is virtually digestion of the enveloped bacteria by the white blood cells, and further, that trypsinogen passed from the pancreas into the blood is activated by the splenic hormone, and the active secretions then utilised by the white cells.

In 1894–95 Danilewsky and Selensky[10] worked on this study, and as a result of their experiments they announced that the extract of spleen contains a certain definite substance, not destroyed by heat, which when used hypodermically causes a considerable increase in the hæmoglobin index (from 7 to 40 per cent.) as well as in red cell count (from 10 to 40 per cent.). Bayle[4] himself assumes that the specific action of splenic extract in tuberculosis is due to some hitherto unknown physiologic influence—possibly a colloid-producing function; but whether this function is conclusively proved or not, it will be evident from the foregoing and the references which follow that several of the splenic functions are of such a nature as to explain at least a part of the good results secured from the administration of spleen in tuberculosis.

The statement of Bellamy, already referred to, that the intestinal mucosa furnishes a tryptic activator is confirmed by Ciaccio,[16] who also states[17] that he has found an enterokinase in the spleen which stimulates the intestines. Girolama, experimenting on rabbits and dogs, failed to show that splenectomy altered in any way the secretory functions of the pancreas and liver; and it is well known and frequently emphasised that splenectomy does not seriously interfere with digestion. Bellamy, however, believed that pancreatic digestion is almost completely destroyed following splenectomy, and that digestion is carried out by the stomach and intestines. Experiment shows at least that the increased need for food in splenectomised animals, and the proof that digestion is not often as perfect with the spleen *hors de combat* or entirely removed, simply emphasises the fundamental, which has long been known to physiologists, that quite often the functions of an organ which becomes diseased or is removed are taken up by the others. All this simply emphasises that the splenic influence on digestion is supplementary. Pugliese[39] has made experiments from which he deduced that the spleen also has an influence upon the composition of bile, and Asher[1] in a very interesting paper emphasises his belief that the spleen is in charge of the metabolism of iron.

The question of the relation of the spleen to the blood is much better known. All physiologists agree that the spleen is an important part of the hæmopoietic system, although not entirely essential to it. Its influence in the production of leucocytes and its place as an important defensive organ against disease were emphasised by Bezançon[9] in his thesis. Goldschneider and Jacob[22] in 1893 reported that extracts of spleen and thymus produced decided leucocytosis, and showed that this was evidently not due to the nuclein contained in these extracts, for similar experiments with preparations from the thyroid, liver, and kidney, all of which contain relatively large amounts of nuclein, caused no appreciable influence on the white cell count.

Carpenter[13] has had considerable clinical experience with the use of splenic extract in typhoid fever, and believes that the good results which he has obtained are due to an influence in restoring the functional activity of the spleen which, it is well known, is notably disordered in typhoid. Its administration "causes a marked increase in leucocytosis and otherwise restores its (the spleen's) functions to normal." Carpenter used five grains of splenic extract three times a day in typhoid fever, and states that this was a means of "rapidly and steadily reducing the temperature without undue diaphoresis," and that it "ameliorates all the symptoms and restores the patient to the normal." In a more recent article[14] he also advocates splenic extract as a "real remedy for malarial infection," and explains its action in malaria in the same manner as in typhoid, and goes as far as to state that it produces the beneficial effects of quinine without its bad effects. Incidentally, he also advises the use of red bone marrow, which seems to activate the splenic extract in those cases which did not promptly respond to splenic extract alone. This is in corroboration of the experiences of others, who have used spleen in malarial cachexia, with a resultant reduction in the hypertrophy of the spleen, as well as the other symptoms.

It is also believed that the spleen exercises an influence on the coagulability of the blood, and in some manner tends to prevent hæmorrhage. Landau[29] has used splenic preparations with success in various hæmorrhages, and reports especially good results in menorrhagia. David has also used an extract of spleen in anæmia, clinically confirming Danilewsky's experimental studies. He also found that not only were the blood findings changed, but the appetite was increased and there was a corresponding gain in weight and general resistance.

Strangely enough, spleen preparations have been advocated in Great Britain for the treatment of certain phases of insanity. Clark[18] used it in asthenic cases, with good results both on the general and mental condition. Confirmation of this is given by Bois and Kerr,[11] who pointed out that splenic extract is often useful associated with thyroid extract where indicated.

The most recent statements regarding the use of an extract of spleen are those of Carrel, who in his latest

paper,[15] advances the startling view, which is backed up by the most extensive experiment, that certain tissue extracts have the power to activate *in vitro* the growth of connective tissue. While he found that the extract of chick embryos was the most active preparation, extracts of adult spleen were almost as active, while kidney and heart extracts were much less active, and extracts of connective tissue or blood cells were almost without influence. Carrel, in his summary, intimates that these discoveries "may be indirectly useful by leading to the discovery of some of the factors determining the growth of tissues and of the unknown laws of cell dynamics, and may ultimately throw light on the mechanism of the cicatrisation of wounds."

More recently van Stockum[43] has been experimenting with an extract of spleen which has previously been exposed to the Roentgen rays. He reports 3000 treatments, which show that the method is harmless, and that it causes an early change for the better in many cases, especially of surgical tuberculosis. Perez[38] believes that good results are obtainable from the administration of an extract of lymph glands, especially in immunising against tuberculosis.

Further reference regarding the influence of the spleen and its hormone may be found, and interested readers are referred to the writings of Patricelli,[37] Liverato,[31] Grimani,[23] Foà,[20] Maggiore,[32] Salomon and Halvron,[40] Lépine and Lyonnet,[30] and Williams.[45]

There can be no reasonable doubt that the spleen has a very important influence upon nutrition, and that splenic extract is a valuable remedy in the treatment of those conditions in which malnutrition is an important factor. The statements preceding, and a study of the literature referred to in the bibliography, cannot but convince the confirmed sceptic that the splenic functions are far more extended and important than those connected with hæmopoiesis.

To sum up, the use of splenic extract has been advised in several diseases, and I believe not only on general theoretical and experimental grounds, but from actual clinical experience, that it is useful in tuberculosis, and that its value is presumably due to certain splenic hormones, on which, in a degree, the following phenomena are dependent:—1. The defences of the blood; leucocytosis, phagocytosis, and, possibly, hæmoglobin formation and iron metabolism. 2. Tryptic digestion, thus directly increasing assimilation and nutrition, permitting an increased intake of food, and indirectly relieving the emunctories from the excessive work common in toxæmia and suboxidation. 3. Intestinal digestion and the production of enterokinase. 4. The process of healing, both as regards the prevention of hæmorrhage and the stimulation of rapid connective tissue production. 5. Antagonism to the tubercle bacillus by an influence on its culture medium, due to the production of a certain colloid substance (Bayle). 6. And finally, the function of the spleen itself.

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Hornsey, N.

TRAINED NURSES' ANNUITY FUND (FOR DISABLED NURSES).—The annual general meeting of the members of this fund will be held on Friday, Feb. 28th, at 2.30 P.M., at the Caxton Hall, Westminster. H.R.H. the Princess Christian of Schleswig-Holstein (President of the fund) will preside, and the meeting will be addressed by Field-Marshal Lord Methuen and by Sir Francis Champneys. The honorary secretary is Dr. A. Ogier Ward, 73, Cheapside, E.C.

CHICHESTER INFIRMARY.—The personal interest shown by King Edward in the latter years of his life in the Chichester Infirmary is being maintained by the present Sovereign, who has arranged to visit the institution on August 2nd to reopen the infirmary after reconstruction. His Majesty has intimated that in the event of the governors desiring the title of "Royal" to be given to the institution the board of management should apply to the Home Secretary, and at the annual meeting of the governors on Feb. 13th the trustees were empowered to realise and pay into the general account such a sum as shall free that account from debt and provide a working balance, such being necessary before an affirmative reply would be given for Royal patronage. The annual report showed that the income for the year was £700 less than for the preceding year, but as some of the beds were closed owing to building operations, thus causing a reduction in the expenditure, the loss on the year only amounted to £391. During the year the board of governors received the sum of £1153, subscribed by "the personal friends of the late Mr. William James, C.V.O., as a memorial to him," and also a sum of £300 given by Mrs. William James herself for the furnishing of the operating theatre as a lasting tribute to her husband's memory. It was through this lady that King George's intention to reopen the infirmary was made public. Warm appreciation was expressed at the meeting of the work of the honorary medical and surgical staff, and the extent of their labours is shown by the fact that there were no fewer than 634 in-patients and 3019 out-patients during the year. There were 461 major operations.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE OF A CASE OF GONOCOCCAL PYÆMIA.

BY CLAUDE B. TUDEHOPE, M.B., CH.B. EDIN.,
SENIOR HOUSE SURGEON, WEST KENT GENERAL HOSPITAL, MAIDSTONE.

IN a recent publication, "Gonococcal Infections," by Major C. E. Pollock, R.A.M.C., and Major L. W. Harrison, R.A.M.C., I see it stated that only a few cases of the above condition have been recorded. The following case must, therefore, be of some interest.

The patient, aged 25, contracted gonorrhœa two years ago while resident abroad. He received no treatment there, and stated that the discharge cleared up entirely in six weeks. On returning to England 18 months later he had a slight recurrence of the urethritis, and then consulted a medical practitioner, under whose treatment it disappeared in a week. Some four weeks after this (he could not state exactly when) he started "night-sweating," felt ill and unable to work, and was losing his appetite and also losing weight. This general illness continued for four weeks, until one night during an attack of coughing and vomiting while retiring to bed, he "felt something drop" in his left leg. In the morning this leg was swollen and painful, and he could not move it. He was found to have a thrombus in his left internal saphenous vein, and was admitted to the West Kent General Hospital.

The patient was then having slight rigors every evening, and his temperature was rising over 99° F. He would have a profuse sweat during the night, and his temperature would gradually fall until in the morning it was 97°. His liver was 1 inch below the costal margin, and was tender on palpation. He also almost immediately started to cough up sputum containing blood and pus, and examination of his right lung base revealed a small pneumonic area with overlying pleurisy. The sputum was examined microscopically, and revealed pus, pneumococci but no tubercle bacilli. On acquainting the patient with his weight he said that he had lost 1 st. 8 lb. during the last three weeks, and he was assuming a hectic appearance. Although his urine appeared normal and there was no visible discharge from the urethra, there was no difficulty in demonstrating the gonococcus. He was then given 50 millions of gonococcal vaccine, and had a slightly higher rise in temperature, but no other symptoms of reaction. During the week following this injection all his symptoms continued, but towards the end were becoming less severe. He was now given a second injection of 100 millions. Within 24 hours of this his temperature became normal and never again rose above 98·4° throughout the treatment. His liver had now receded to the costal margin and was no longer tender; he coughed very little and there was no sputum. He had no more rigors or night-sweats. Nothing abnormal could be found in his chest except some slight dulness over the pneumonic patch above described. His hectic appearance became less marked. At intervals of a week three more injections of vaccine were given—one of 200 millions and then two of 400 millions each. With the last he had a very decided reaction, with rise of temperature, headache, nausea, and vomiting. These all ceased in six hours. After this he was carefully examined and nothing abnormal could be detected in any system. He no longer had any symptoms whatever, and since the beginning of the treatment his weight had increased 1 st. 1½ lb.

It is worthy of note that the injections of vaccine did not at any time bring on his urethral discharge. He never had any arthritis, and if he had any endocarditis it could never be detected, although often looked for. The origin of the internal saphenous thrombus is just as difficult to explain as the puerperal variety, but I suggest a direct spread from thrombosed prostatic veins. I might also mention that from the fact that this patient had had malarial fever this latter had to be carefully excluded, and, of course, signs of pulmonary tuberculosis were frequently sought for before what I believe was the correct diagnosis was come to.

This case was under the care of Dr. J. Aldington Gibb, honorary physician to the hospital, and I am much indebted to him for permission to put it on record.

Note by Dr. J. ALDINGTON GIBB.—The main points of interest in this case are: 1. The rarity of the condition. It was only by a process of exclusion that the actual cause could be diagnosed. Having seen many cases of malarial fever, and having been a sufferer myself, I was able to exclude this. As was to be expected, the gonococci were extra-cellular and in fair numbers. 2. The initial gonorrhœal attack was slight and occurred two years ago. 3. With regard to the thrombosed vein I cannot agree with Dr. Tudehope as to its cause. I think it more likely that it was set up by gonococci getting into the blood stream and infecting the walls of the vein. There are three stages in the spread of gonococcal infection: (*a*) urethral infection; (*b*) blood invasion; and (*c*) tissue invasion. In this case all stages were present. 4. The reaction following the last dose of vaccine was in part caused by auto-inoculation, as the patient was sent home the next day, and I believe spent the evening with friends.

Maidstone.

NOTE OF A CASE OF IMPACTED CALCULI IN THE URETHRA PRESENTING UNUSUAL FEATURES.

BY T. C. RUTHERFOORD, M.D. DURH.,
CAPTAIN, INDIAN MEDICAL SERVICE; CIVIL SURGEON, BILASPUR, CENTRAL PROVINCES, INDIA.

A WELL-NOURISHED and healthy looking man of low caste, aged about 22 years, came to the main dispensary at Bilaspur on Nov. 26th, 1912, complaining of pain on micturition and "dribbling of urine" of five months' duration. On examination there was a small, tender, and hard lump in the middle line of the perineum midway between the anus and scrotum. On passing a sound a calculus could be felt. The urine contained a moderate quantity of pus. The bladder was distended to about 3 inches above the pubis.

An operation was performed on the same day. Chloroform was given, and a sound having been passed and the fact of impaction definitely ascertained, the calculus was cut down on in the middle line. A stone, ovoid in shape and about an inch in greatest diameter, was removed entire from the posterior portion of the bulbous urethra. A second calculus, which appeared to be about twice the size of the first, was then found lying immediately behind it. As it was large and firmly impacted it was not considered advisable to attempt to remove it entire, and it was accordingly partially crushed with crushing forceps. The more anterior and larger portions were then removed, and it was found that the posterior portion presented an hour-glass-shaped prolongation which extended just within the bladder, the "neck of the hour-glass" being so firmly gripped by the sphincter that this fragment could not be withdrawn. It was accordingly pushed into the bladder, broken with a lithotrite, and the fragments removed with the finger and by washing out. A good deal of oozing of blood from the congested mucous membrane of the posterior portion of the bulbar and from the membranous and prostatic urethra and trigone followed removal, but ceased within an hour from the termination of the operation. The calculi weighed 100 grains and 4 drachms respectively, and appeared to be composed of uric acid and phosphates, the latter preponderating. Convalescence was uneventful, and the patient left the hospital 14 days after operation with a small perineal fistula at the site of the wound.

This case is reported because I imagine that the removal of such large stones from the urethra must be rare. Presumably the smaller calculus was first passed into the urethra and, becoming impacted, increased in size, and its presence led to the subsequent formation of the second stone in the dilated membranous and prostatic urethra. The presence of the prolongation of the second stone through the orifice of the urethra into the bladder is interesting. The case also illustrates the extraordinary power of enduring pain so often exhibited by Indian peasants.

Bilaspur, C.P., India.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

After-effects of Gastro-enterostomy.

A MEETING of this section was held on Feb. 11th, Mr. G. H. MAKINS, the President, being in the chair.

Dr. ARTHUR F. HERTZ read a paper on the Cause and Treatment of Certain Unfavourable After-effects of Gastro-enterostomy. He said that it must have been the experience of almost every surgeon that patients upon whom a gastro-enterostomy had been performed have at some later period complained of symptoms which were often trivial in comparison with those of the condition for which the operation was carried out, but which were none the less sufficient to prevent the patient from regarding the result of the operation as entirely satisfactory. He had gradually come to recognise that the symptoms in a considerable proportion of these cases were due to causes which had not hitherto been described.

1. *Too rapid drainage of the stomach.*—The patient complained of a sensation of fulness, which occurred during each meal and disappeared rapidly; he might find that by eating with extreme slowness he was able to prevent its occurrence. Many patients recognised that it was localised slightly lower than the position where the pain for which the operation was performed had been felt. In some cases the patient also complained of slight diarrhœa, the bowels being opened after each meal. In all patients suffering from this group of symptoms he had found with the X rays that the stomach was small and hypertonic and that the passage of food out of it was extremely rapid, so that a bismuth meal left the stomach in less than an hour and in one case a quarter of an hour after being taken instead of requiring the normal three or four hours. If the patient was watched while he was taking the meal the outflow from the stoma might indeed appear to be almost as rapid as the inflow from the œsophagus. In all cases, whether there was any pyloric obstruction or not at the time of the operation, little or nothing passed through the pylorus, and sometimes the chyme even failed to reach the portion of the pyloric end of the stomach beyond the stoma. The part of the jejunum into which the gastric contents passed from the stoma was consequently distended, and discomfort resulted. In confirmation of this, the situation of the sensation was found to be lower than that due to gastric distension, and corresponded to the upper limit of the situation of the pain felt when the small intestine was subjected to rapid distension. The patient sometimes found that anything which increased the activity of the small intestine, such as exercise or a dose of castor-oil, though it might increase the discomfort, made it disappear more rapidly than it would do otherwise, doubtless because the distension of the jejunum lasted for a shorter period. Confusion with the symptoms arising from a jejunal or gastro-jejunal ulcer was prevented by the fact that the nature of the diet had a considerable influence on the latter, whereas in this type of post-operative indigestion the quantity and not the quality of the food was alone of importance. The diarrhœa was mainly due to the irritation of the bowels by the food, which escaped from the stomach too rapidly for efficient gastric digestion; owing to the absence of the normal stimulation of pancreatic secretion by hydrochloric acid in the duodenum it did not undergo sufficient compensatory digestion in the intestine. It tended to occur after meals owing to the normal gastro-colic reflex, which he had shown led to an increase in the peristalsis of the colon whenever food entered the stomach. Complete relief or considerable improvement occurred if the patient was instructed to lie down for half an hour or an hour after each meal, as it was found with the X rays that the stomach emptied itself much less rapidly when this posture was assumed, the stoma no longer being in the most dependent position. In some cases it was better to lie on the right or less frequently on the left side, the best position being easily ascertained by watching the rate of evacuation with the X rays. The patient should also be given some active preparation of pancreatic ferments at each meal in order to compensate for the deficiency of the normal secretions. If the sense of fulness was still experienced in spite of the treatment described, small doses of belladonna and of codein should be given half an hour before meals. If all treatment failed to give relief and the patient's symptoms were severe, it might perhaps be necessary to perform an operation with the object of diminishing the size of the stoma; or, if the pylorus was not obstructed, of restoring its activity by completely closing the stoma. The interesting question also arose whether surgeons had not gone somewhat too far in their desire to obtain sufficient drainage, and whether it would not be advisable in the future to make a somewhat smaller stoma than had commonly been made in the last few years.

2. *Situation of the stoma above the upper level of the gastric contents.*—In cases of extreme dilatation of the stomach he had on a number of occasions observed that in the vertical position the whole of the gastric contents accumulated in the lowest part of the stomach in such a way that their upper limit was below the pylorus and might not even reach the lesser curvature. In such cases nothing at all could leave the pylorus, however strong peristalsis was, until the patient lay down. It was clear that in such cases an effective gastro-enterostomy must have the stoma so situated that it remained in the most dependent part of the stomach even when the vertical position was assumed. He had seen one case of dilated stomach due to simple pyloric obstruction, in which no improvement resulted from operation, and in which he found that in the vertical position the upper limit of the gastric contents did not reach as high as the stoma or the pylorus, but that on compressing the lower part of the abdomen the contents rose above the stoma and at once began to pass out of it. By supplying the patient with an abdominal support and making him lie down for an hour after meals on his left side, the position in which he found that the drainage was most rapid, complete relief was eventually obtained. He believed that the notorious absence of success of gastro-enterostomy, when performed for severe atonic dilatation of the stomach without organic obstruction, must be due to a similar cause, drainage through the stoma being mechanically impossible.

Mr. EDRED M. CORNER read a paper on Inferences of Modern Treatment Drawn from Histories of Patients who have Recovered from Perforation of a Gastric or Duodenal Ulcer.

MEDICAL SOCIETY OF LONDON.

Appendicitis: A Plea for Immediate Operation.

A MEETING of this society was held on Feb. 10th, Sir W. WATSON CHEYNE, the President, being in the chair.

Mr. EDMUND OWEN opened a discussion by reading a paper entitled Appendicitis: A Plea for Immediate Operation, which was published in THE LANCET of Feb. 15th, p. 441.

Mr. W. H. BATTLE said he did not think that anyone with much experience of appendicitis in its acute form could deny that operation, including removal of the appendix, at the commencement of the attack was advisable, and that it constituted the only plan of treatment that could be regarded as certain to yield adequate results in a large series of cases. To advise a patient to submit to operation was the counsel of perfection. Every patient with an attack had to face a serious illness; if it was not fatal it was one which under the best progress was likely to keep him in the house, and probably in his bed, for days. It was liable to recur. It was also a painful illness, which might, being of a septic nature, change its character, and although of mild beginning bring troublesome complications and threaten life for an indefinite period. Should operation be necessitated by any of these complications he might recover but would remain for a long time weak and exhausted. One might also add that the complication which required operation was usually suppuration, when it was not always advisable to do more than incise and drain, and the appendix might require removal later. He had then to face another operation at a later date when apparently well and he thought himself out of

the wood. He had lost very much and gained nothing by his refusal to submit to operation in the first instance. Early operation was not only life-saving; there were many other advantages, for the period of illness was shortened and, if done quite early, the wound could be closed without drainage, so no weakness remained at the incision for the future development of a hernia. Indeed, the after-course might be so mild that the individual could not believe that he had escaped a possibly fatal illness. He sometimes accused his medical man of having forced an operation because he wanted to give his friend, the surgeon, "a job"! Mr. Battle remembered one instance of this kind in which a gangrenous appendix was removed and an illness which began with a rigor and a temperature of 106° F. was promptly checked by operation within 12 hours. The appreciation of the parents was shown by the fact that they soon afterwards changed their medical man, because they considered that he had rushed the operation. So much harm had been done in the past by the spread of an idea which was prevalent that appendicitis was a harmless, fashionable complaint that even now it was difficult to make people appreciate the fact that it had many forms, and that some of them might be deadly. They often knew of some friend who had an attack (perhaps more than one) from which he recovered in a few days, and did not see why they could not be treated as he was; could not understand how they were in any way worse; it was the same disease. The conclusion they came to was that if the doctor was right in his diagnosis he did not know as much about the treatment as the one who cured his friend with medicine. It must be evident that if early operation, that was, operation within the first 24 hours, were possible in every case the great mortality of the disease, amounting to several hundreds a year in this country and some thousands a year in the United States, would be reduced to reasonable dimensions. Much had already been done, but the need for urging the operation on the profession most strongly still existed. Human nature was, however, very obstinate in this country; and if one told a man he *must* have an operation he possibly declined; he was not going to be forced into it. The wise man had the operation, but it was not always only the fool who refused. If either of them recovered without, after he had been told he must undergo operation, the fact was spread widely amongst his friends, and perhaps the next who developed an attack died, because he thought that he too would score off the doctor. It was possible to be too dogmatic. Every general practitioner who had a large practice could tell you of case after case in which recovery ensued, the illness being quite without incident, in some of which at first the initial symptoms were severe—of patients who, applying for removal of the appendix in the "quiet" period, might have had two or more attacks before they came, showing typical symptoms with the development of a swelling in the iliac fossa. If one told a practitioner of experience that he could not diagnose and give a reliable prognosis in such instances he would naturally smile at the statement, recollecting many in which he had proved his powers. It was difficult to believe that any surgeon would try to force an immediate operation in such cases unless he considered there were exceptional circumstances in the patient who was being examined. It might be right and expedient, but not imperative. As a general statement it was probably true at one time that no one could say what the condition of the appendix was in an acute case until it had been seen, but he ventured to suggest that at the present time we could define with considerable accuracy what was occurring to cause the symptoms in a large number of cases. We could not expect every one to do so, but he believed that most experienced men could. We had learned much in the last ten years. The more important thing was to be able to say, even in the early stage, "This is an attack in which operation must be performed as soon as possible, there are certain symptoms present which show that it would be madness to postpone operation, even for an hour, and risk the great dangers to which such an illness exposes this man." Furthermore, the influence of a first attack on the production of suppuration around the appendix must be recollected. The occurrence of appendicitis in a pregnant woman was so very disastrous that no effort should be spared to get away the appendix at once. In children and again after middle life it was very seldom wise to "put it off." When we saw a case shortly after its commencement we should try to come to a conclusion as to the condition of the appendix on which the symptoms depended, and he did not think it less difficult to come to some decision on this point after 24 hours had elapsed. But in addition we had to consider the question whether the powers of the patient, unassisted by the surgeon, appeared able to localise the inflammation. In some a reply could be given in the negative: it was a fulminating attack, life was already in the balance, and the surgeon must act promptly. In others we could not say, and if the patient was in a period of repose, or under the influence of morphia, there might be still more difficulty. The sudden cessation of pain was always an important sign of danger. Again, we might find proof that the case was settling down, there might be a localised swelling in the iliac fossa or felt per rectum; many surgeons would hesitate to operate under such conditions, even if they thought that there was pus present in the swelling. Appendicitis was a septic disease, and localised suppuration ensued in very many cases, not only without causing great disturbance, but without giving the patient uneasiness. It was localised, the septic fluid had been shut in by an area of protective material, and the individual was probably saved. Further, we knew that even large collections of pus often came away harmlessly by the bowel. Toxæmia produced by absorption from a localised suppuration was hardly known, whilst interference in a localising suppuration had been followed by fatal results. If there was no localised swelling, if the pain and tenderness continued, if there was a rigid abdomen (partial or general), commencing distension, or as an earlier symptom diffused dulness in the iliac region or lower abdomen, a rapid pulse (especially if a rapid and increasing pulse-rate was associated with a falling temperature), then we could have no hesitation in urging operation. And one would find it necessary to drain the peritoneal cavity. Regarding operative interference at this stage, there were points which were, he believed, of value. Quickness in the manipulation was of importance, but that was not the same thing as hurried handling and disturbance of parts. The surgeon should avoid pulling and pushing of the inflamed structures; remove any purulent collection by allowing it to soak in gauze strips, which could be taken away when they had become saturated; search for the appendix after isolating the parts concerned with gauze; if possible wrap the appendix in gauze to prevent contamination of parts as it was taken out; but if it was fixed by old and firm adhesions, or so placed that removal would involve repeated or rough handling of inflamed peritoneum, then it had better be left. The patient would run less risk than he did from an unduly prolonged operation. He could recall more than one case in which he had regretted a removal successfully only after strenuous and prolonged efforts. He had thought that it appreciably diminished the patient's chance of recovery. If the surgeon did remove the appendix, then he should close the cæcal opening with more than one row of sutures. In many cases which were seen later, when the patient was toxæmic with extensive suppuration in the peritoneum, a simple incision and insertion of a large drainage-tube were alone indicated. The operation could be done under local anæsthesia, and the effects of drainage were sometimes surprisingly good when combined with proper position in bed and rectal saline infusion. One object was to afford the pus an opportunity of escape, so diminishing the quantity of septic fluid from which absorption was taking place, and the tension which was breaking down the protective barriers that had been formed in the attempt of the individual to localise the mischief. On the virulence of the septic material which gathered outside the appendix, and the power of resistance of the individual, would depend the progress of the case. In his opinion boys and young men had far less resisting power than the opposite sex of similar ages, and he thought that much of this was further lessened by the unyielding and more powerful abdominal wall in the former; there was often excessive reflex muscular contraction throughout. It was, however, very difficult to say truthfully that because a sloughing appendix, or one which would have perforated before long, or one which had perforated already, was found and removed at an operation for acute appendicitis, therefore the patient's life had been saved. It was so hard to gauge the power of resistance of an individual. It was known he had been saved a very bad illness,

but the crippled appendices removed in the "quiet" period, especially after abscess, showed how extensive the pathological processes must have been. Indeed, most surgeons had evacuated a sloughed appendix from an abscess with the pus. He was not an advocate for indiscriminate operation in every case; he would never refuse to operate if it were possible. There were many cases which must be operated upon—within six hours was not too soon, beyond 12 hours might be too late. Every hour that passed since the initial peritonism increased the chance of estimating the value of symptoms which were found when the patient was seen. The case might still be called acute for purposes of classification, but signs might be recognised, either local or general, which indicated that the attack was subsiding. It was advisable always to endeavour to diagnose the state of the appendix, but the clinical estimation of the case was of more importance. The subject was admittedly of the greatest importance, and could not be settled at once in the easy way which some would wish us to believe. Indiscriminate operation in every case and at any period in an acute attack would be found almost as disastrous as no operation at all. He added that it was necessary to remove an appendix which had given signs of disease, as no one knew when there might be an acute attack. Operation in the "quiet" period was a safe one, and he held the opinion that there was often greater safety in postponing removal of the appendix until evidence was found that local sepsis had quite passed away, although it might be requisite to perform a smaller operation in order to attain this object.

Mr. C. P. CHILDE (Southsea) said that he was an out-and-out advocate of operation in appendicitis at the earliest available moment, and he considered any counsel of delay or of an attempt to discriminate between cases that should be operated upon and those which might be left to an interval operation to be a putting back of the clock in the treatment of this disease. His reasons for this attitude, arrived at as the result of experience of about 700 operations, were as follows. The more extensive acquaintance with appendicitis became—acquaintance derived from a careful history of the patient's illness, a close examination of the symptoms and physical signs, followed by disclosure at the subsequent operation of the conditions actually existing—the more convincing became the entire unreliability of any symptoms or physical signs as a guide to the immediate or future safety of the patient. Of course, it was often quite easy to be sure, owing to the acuteness of the onset and the rapidly developing toxæmia, that a very grave condition existed within the abdomen requiring immediate surgical relief. It was the converse that it was impossible to divine—viz., that where the symptoms and signs were apparently of a mild character the local condition actually present or the danger immediately threatening was of a corresponding nature. Neither the temperature, nor pulse, nor degree of pain and tenderness, nor the general condition of the patient, nor any other sign that he knew of, would give reliable data for forming the opinion that the condition within was not fraught with danger to life or that the case would run a mild course and terminate in ultimate recovery. He could illustrate this from many cases in his notebooks. Such cases illustrated the entire unreliability of the usual clinical symptoms or signs as a guide to the actual condition existing, and he must confess that he knew of none that were reliable. It appeared to him, therefore, to be up to those who considered delay safe in certain cases to furnish the information as to exactly what cases these were, and what signs could be relied upon to justify delay. If they were unable to do this their case fell to the ground, because there could be no doubt that if every case was operated upon by an experienced surgeon within 24 hours of onset, there would be no mortality from appendicitis apart from the infinitesimal one that attended a simple abdominal section, and which would probably remain as the unpreventable risk involved in all operations to the end of time. Of course, it was admitted that many appendices were removed which would get well without operation, but he did not think there were many surgeons or even physicians to-day who were of opinion that an appendix which had once given rise to an acute attack should be left within the patient's abdomen to the chance of what might happen next time. So that, given the patient was suffering from appendicitis, no unnecessary operations were performed by removing the appendix forthwith. Operation during the acute stage was in the patient's interest for another important reason. If he got well he might refuse the interval operation. However forcibly he might be warned by his medical attendant, he was not in a position to appreciate the magnitude of his risk, and would sometimes come to an erroneous decision which might prove fatal to him. He had never known a patient refuse operation which had been urged upon him during an attack. He knew he was ill and would take advice to get well. But once he was well he sometimes, perhaps naturally enough, but to his own detriment, and maybe to the loss of his life, declined the further attentions of the surgeon. He believed the ideal in the treatment of appendicitis was to educate the practitioner and to educate the public to immediate operation in all cases. It had the advantage of simplicity as well as reliability. It left nothing to blind chance. The practitioner would not waste time in doubt endeavouring to make up his mind whether the case was one to operate upon or one to leave—a doubt which always jeopardised the patient's chance of recovery, and frequently extinguished it. If such a course became the recognised practice—and he was glad to say in his part of the world it was becoming the recognised practice—the early cases of appendicitis would cause no anxiety, their mortality would be *nil;* the only cases which would cause anxiety would be those that were either not seen or not diagnosed in the early stages—i.e., till the third or fourth day, or even later. Here, again, he thought the treatment attended with the least risk to the patient was to operate at once and remove the source of infection. Of course, it was not so safe as operating at the onset. It never could be so. Many of these patients were suffering from general peritonitis and more or less profound toxæmia, and there would always be a certain mortality amongst them, whether they were operated upon or not. It was held by some that the shock of the operation plus the manipulation, which opened up fresh lymphatic and blood vessels to infection, jeopardised the patient's chance of recovery. He thought the fear was exaggerated. His experience of operation in these cases was this—that if the patient's general condition at the time was such as to justify a hopeful prognosis, the removal of the source of infection always benefited him. He was never made worse as the result of the operation. If, on the other hand, he was so ill that the surgeon did not think he would stand a ten minutes' operation, if he was cyanosed—with a sweating forehead and cold and clammy hands—it was better for the reputation of surgery that he be left to die without operation, which was certain to be credited with having killed him. If his condition was such as to justify an attempt to save his life, he might, of course, die after the attempt. This did not mean that the operation killed him, but that it failed to save his life—a very different thing. If the patient's general condition was fairly satisfactory, if the toxæmia was not profound, he (Mr. Childe) operated at any stage of appendicitis and confidently relied on recovery—he had been rarely disappointed. In fact, it was on the general condition of the patient at the time of operation, not on the condition found within the abdomen, that he based his prognosis. If the former was good, the prognosis was good. In late cases where a localised abscess was present he never spent time or caused unnecessary disturbance by a prolonged operation in search of the appendix. Drainage was all that was necessary at the time, and the appendix should always be removed later. These were briefly his experiences of appendicitis. The treatment he had been led to adopt—viz., early operation, and the earlier the better—had yielded very satisfactory results and seemed to him to be founded on reasonableness and common sense. He had no great faith in statistics. They could be made to prove anything according to the fancy of the compiler. Until we possessed more reliable data than we had at present and could say positively that any given case was safe to leave, he should consider he was acting with an assumption of knowledge he did not possess if he tendered a patient suffering from appendicitis the advice that he might safely await the removal of his appendix to a subsequent date.

Mr. G. GREY TURNER (Newcastle-on-Tyne) said that he was altogether in favour of early operation, and quoted statistics to support his contention of its advantages. Of a total of 681 cases of appendix operations, he had had a mortality of 35, or 5·13 per cent. These were comprised of eight groups: (1) Acute appendicitis without peritonitis,

43 cases, without a death; (2) acute appendicitis with localised peritonitis, 130, with 3 deaths, or 23 per cent.; (3) acute appendicitis with flank or pelvic peritonitis, or both, 79 cases, with 3 deaths, or 3·7 per cent.; (4) acute appendicitis with diffuse peritonitis, 34 cases, with 16 deaths, or 47 per cent.; (5) appendicitis with residual abscess, 40 cases, with 3 deaths, or 7·5 per cent.; (6) appendicitis with primary localised abscess, 184 cases, with 6 deaths, or 2·26 per cent.; (7) appendicitis with interval removal, 160 cases, without a death; and (8) appendicitis with primary complications, 11 cases, with 4 deaths, or 36 per cent.

Mr. A. H. BURGESS (Manchester) presented an analysis of 606 consecutive operations for *acute* appendicitis which he had performed during the seven years 1906–12. Operations during the first 24 hours of the attack gave a mortality of 2·1 per cent., during the second day 2·8 per cent., the third day 5·3 per cent., the fourth day 9·6 per cent., the fifth day 19·2 per cent., the sixth day 22·7 per cent., the seventh day 8·0 per cent., the second week 6·9 per cent., the third week and after 6·1 per cent. In 181 cases in which the infection was found at the operation to be limited to the appendix there was one death, a mortality of 0·55 per cent., in the localised abscess cases the mortality was 5·2 per cent., and in the diffuse spreading peritonitis cases 15·3 per cent. In all the cases of limited infection the wound was closed without drainage, and the convalescence was in every way comparable to that of an interval operation. This analysis showed that the time of all others in the life-history of appendicitis when operation entailed the least risk, offered the greatest advantages, and was attended with the speediest convalescence, was in the early hours of the first attack. Unfortunately many cases were not seen until the third day or later, and as the mortality after operations in this "intermediate" stage was admittedly high, some surgeons still advocated an expectant policy. Such a policy would be justified were it possible to foretell the future course of any given case, but there was no reliable sign nor any combination of signs by which a trustworthy prognosis could be given, prognoses in acute appendicitis being little better than guesswork. Moreover, the high mortality of these "delayed" cases could be diminished, and in this connexion special stress was laid upon the avoidance of chloroform as the anæsthetic, upon the necessity of not attempting to do too much at the operation, and upon repeated gastric lavage. The ideal procedure in acute appendicitis was early diagnosis followed by early operation, an ideal which, though attainable, was not yet attained. In the meantime every case should be submitted to operation as soon as possible, quite irrespective of the stage of the disease, the proper influence of the latter merely being to decide the extent of the operative procedure.

Mr. GEORGE R. TURNER also favoured early operation. The mortality at St. George's Hospital had fallen to 2 per cent. for the last four years. This he ascribed to the fact that the cases were sent in earlier. In his last 100 cases he had had only one death, and had operated upon 62 consecutive cases without a fatality. He could not see any advantage in waiting, for if the patient recovered removal was necessary afterwards; if not, the inflammation progressed. He operated at whatever stage the disease might be, so long as the patient was not moribund. There was practically no risk in the early stage. He always used gauze, as well as a drainage-tube if necessary, and also marine sponges.

Dr. J. CRAWFORD RENTON said that he had listened with great pleasure to Mr. Edmund Owen's valuable paper. If his recommendation that whenever appendicitis was diagnosed the patient should be operated on was carried out, the mortality after operations would be greatly diminished. Until, however, medical practitioners and the public agreed to this advice there would be many cases of so-called catarrhal appendicitis which would be allowed to subside and be operated on during what was called the interval. There was no mortality after operations for the removal of quiescent appendices as a rule, unless some other condition showed itself, such as thrombosis or delayed chloroform poisoning. Ether should always be used, especially in children. In acute appendicitis, with or without abscess, it was most important to operate at once, removing the appendix at the same time. He used a tube with a strip of gauze and the healing process took place quickly, combined, of course, with the Fowler position and saline injection. In large abscesses it was often safer to leave the appendix until the acuteness subsided and remove it at a later operation. The plan of delay had been disappointing. He spoke of three cases where the abscess burst into the abdominal cavity, into the bladder, and into the pleural sac. In cases promptly operated on the mortality had been 2 per cent. In general peritonitis it lay with the profession to have such cases operated on early, as, if they were delayed until the third or fourth day, the mortality was very high, being 25 or 30 per cent. In 502 cases of all kinds the mortality was 3·6 after operation.

Major A. J. HULL, R.A.M.C., said that it would be admitted by all that early cases should be operated upon, that is to say, cases seen before pus formation took place. If all cases could be operated upon in this stage the disease would have a mortality of *nil*. Again, cases in which an abscess had reached the abdominal wall it would be agreed should be operated upon. And thirdly, it would be agreed that cases of general peritonitis required operation. We were left with those cases in which pus had formed, but was encysted and could only be reached by operating through healthy peritoneum. It was around these cases that the battle was waged. They might be considered in two classes: the coli cases and the cases caused by the pyogenic group; a certain number were cases of pure coli infection. These would, he admitted, recover after pus formation by absorption of the pus, or, on the other hand, a large abscess might form and have to be dealt with. If these bacillus coli cases were operated upon the pus was so innocuous that primary union was obtained in the abdominal wound, even although pus drained over the sutures. Some surgeons even sewed up the wound without drainage. So great was the peritoneal resistance that peritoneal adhesions were always plentiful, and the danger of spread of peritoneal infection as a result of operation was negligible. An operation was surely justifiable and safe in such cases. He then considered the remaining class of the cases in which pus formation was encysted and only reached through a clean peritoneum, but in which the infection was due to the pyogenic group of micro-organisms. In these it would surely be contrary to surgical principles to leave an abscess containing virulent pyogenic organisms undrained. It must be admitted that it would also be dangerous to attack such an abscess through a clean peritoneum. The surgeon must make the best of a difficult position by packing off the abscess from clean peritoneum by gauze, or better by rubber sheets. The obvious conclusion would, therefore, appear to be that the only cases which might be left were cases of mild coli infection in which the symptoms were already abating, cases which moreover had not been seen until pus formation had taken place. These cases might be left, but on the other hand it was very doubtful whether they should be. An operation would be safe in such cases. No doubt, large series of cases could be quoted with a low mortality which were treated without operation, but these cases were probably due to pure coli infection, which would have been as successfully and more speedily treated by operation. At any moment the abscess might become secondarily infected, and non-operative treatment was gambling on the chance of a non-virulent organism being the cause. To return to the only cases in which there was any difficulty—the virulent, fulminating cases due to pyogenic cocci. The lowest mortality would in all probability be obtained by operation with special technique. The anæsthetic and duration of operation were of primary importance. Spinal anæsthesia or gas and oxygen should be chosen and open ether only if these methods were not available; chloroform never. The duration of operation need not exceed 10 minutes. The operation should consist of a gridiron incision, clamping, and removal of the appendix by cautery, after the area had been packed off by rubber sheets placed north, south, east, and west of the abscess. One suture would prevent prolapse of intestines. There was no need to sew up the wound. Continuous rectal saline should be commenced on the operation table. Radiant heat should be at once applied and inhalation of oxygen given hourly. A vaccine should be prepared from the pus and a stock vaccine used temporarily.

Mr. A. M. CONNELL (Sheffield) said that he was an advocate of the earliest possible surgical interference in all cases of appendicitis. It must be clearly understood that the diagnosis had been established beyond reasonable doubt after due elimination of any other simulating lesion, such, for example, as cholecystitis, early ruptured duodenal ulcer, pyosalpingitis, tuberculous adenitis of the ileocæcal region,

and pneumonia. This attitude was justified by a comparison of the two classes of patients which fell to one's lot to treat—viz., the institutional cases with a relatively high death-rate and the private cases. In the former delay was the rule, and some form of narcotic the curse; in the latter the case was seen much earlier and narcotics were the exception. No one dare deny that a patient having once been a victim to an attack of appendicitis—followed by recovery—in the near future a second attack was inevitable. Short of the full penalty exacted by nature, the lesions left behind after a case had been allowed to drift on on the "wait and see" principle were, to say the least, most unpleasant to face. Amongst the more common were abscess formation, fæcal fistula, considerable damage to the great omentum, permanent adhesions occasionally leading to acute strangulation, subdiaphragmatic abscess, and, lastly, the ever-present ventral hernia. He felt strongly that the bacteriologists had shown us the way to success and had emphasised early interference, and he would be a bold man who turned his head away from the writing on the wall.

Mr. W. H. CLAYTON-GREENE said that the high mortality was due to delay. He agreed as to the value of the early operation in limiting the mortality and preventing complications. His views had been confirmed by the attitude of many physicians who had become more surgical even than the surgeons. It was impossible to say what was going on in the appendix region. Often there was no definite onset. Operation was always necessary, but the type of the operation depended on the condition.

The PRESIDENT said that he operated upon all cases, and considered it the only safe thing to do. He agreed with Mr. George Turner as to the value of a gauze packing with the tube. He always removed the appendix unless the patient was moribund, and did not believe in leaving it temporarily.

Mr. EDMUND OWEN briefly replied.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Specimens.

A PATHOLOGICAL meeting of this society was held on Feb. 7th, Dr. G. P. SHUTER, the President, being in the chair.

The following specimens were exhibited and discussed:—

Dr. ARTHUR R. SAUNDERS: Congenital Hypertrophic Stenosis of the Pylorus, showing, in addition to the usual hypertrophy, a sharp kink at the pyloric end of the stomach almost sufficient in itself to obliterate the lumen of the canal. The infant was admitted to the hospital at the age of 5 weeks for frequent and forcible vomiting. Visible peristalsis could be seen after feeding. The stomach was not dilated, and although it could be distinctly felt through the thin abdominal wall, no mass could be felt in the neighbourhood of the pylorus. As the symptoms improved somewhat under careful feeding, it was hoped that the child would improve sufficiently for a gastro-enterostomy to be performed, but in the ninth week of life an attack of diarrhœa occurred to which it rapidly succumbed.

Mr. ASLETT BALDWIN: 1. Rodent Ulcer of Forearm excised from a man aged 61. The ulcer started in a scar caused by lacerations made by iron nails; it had been present for five years, and sometimes showed signs of healing. A section was also exhibited under the microscope. 2. Tumour of Epididymis from a patient aged 64. The epididymis was about four times the size of the testis, and the central portion had broken down; the testis itself presented no abnormality. Microscopically the tumour did not appear to be tuberculous or syphilitic, but merely inflammatory; various opinions, however, were given as to its nature. The patient had had hydrocele for years, and a month before admission to hospital was suddenly seized with severe pain and inflammation in the left side of the scrotum. No urethritis or injury. 3. Hypernephroma of Left Kidney from a woman of 60. No urinary or other symptoms except some dragging pain in left side of abdomen. Removal about a year ago, and patient still well.

Mr. W. MCADAM ECCLES: 1. Mucocele of Gall-bladder removed post mortem. Calculus impacted in cystic duct. 2. Mucocele of Gall-bladder removed from a lady who had for many years symptoms of dyspepsia, but never jaundice. The cystic duct was tied, and she made a very good recovery. 3. Tuberculous Salpingitis. This specimen was removed from a woman aged 25; she made a perfect recovery, is now married, but has not been pregnant. There were tubercles over the parietal peritoneum of Douglas's pouch. In reply to some remarks, Mr. McAdam Eccles said that in serous tuberculous peritonitis laparotomy was generally followed by a cure. He believed that peritonitis of a tuberculous nature in the female was caused by infection from the Fallopian tubes, and it was best to remove the tubes whenever possible. In his experience this type of case hardly ever did well if the tubes were left. 4. Five Calculi from the Bladder of a woman aged 29. Since the age of 17 up to date of operation she had passed no less than 278 calculi. The stones exhibited were passed spontaneously with great pain, and showed the wonderful dilatability of the female urethra. She did not have any incontinence of urine. 5. Malignant Teratoma of the Testis removed from a man aged 32. It was a mixed tumour containing elements showing its teratomatous nature, and it had also sarcomatous elements. The patient died six months after operation with secondary deposits.

Dr. HAROLD PRITCHARD: Specimens from a case of Banti's Disease, a late and terminal stage of splenic anæmia. The patient died at the age of 9 years with all the signs of portal obstruction and marked ascites. The liver was small and contracted, with an irregular surface, and microscopically showed the changes typically found in multilobular cirrhosis. The spleen was large and tough and contained some considerable amount of fibrous tissue. The peritoneum was thickened.

Mr. T. JEFFERSON FAULDER: Guillotined Tonsils shown to illustrate that practically any kind of tonsil can be removed complete in its capsule simply with a guillotine and a short anæsthetic. The series presented included all varieties of tonsils—the common bi-lobed type, the flat tonsil, all grades of embedded tonsil, and tonsils reduced to the condition of mere pyogenic membranes. Many of them had been operated on previously. In reply to questions by Mr. MCADAM ECCLES, Mr. RICKARD W. LLOYD, and the PRESIDENT, the details of the operation were explained, and Mr. FAULDER pointed out that the operation called enucleation was invented to meet the cases in which the guillotine, as used originally, had failed to cure, and the necessity for the invention of enucleation sufficiently showed that the clinical results obtained by slicing off a portion of the tonsil were often unsatisfactory. By the new method, introduced by Sluder, one could remove as much or as little of the tonsil as was thought desirable, and the operation was a much less formidable procedure than enucleation by the methods hitherto adopted.

Dr. H. H. SANGUINETTI: Acid-fast Organisms from Distilled Water closely resembling tubercle bacilli. It was important to bear in mind this possible source of contamination when investigating the presence of tubercle bacilli, especially by the antiformin method or by the inoscopic method of Jousset.

Dr. SANGUINETTI also exhibited for Dr. J. M. BERNSTEIN and Dr. R. R. ELWORTHY the following specimens from the Pathological Department of the West London Hospital: 1. Splenomedullary Leucocythæmia showing large basophile myelocytes stained by Wright's method. 2. Spirochæta Pallida from primary sore on lip. 3. Carcinoma of Appendix.—(Mr. MCADAM ECCLES remarked on the interest of these cases, occurring so often in quite young subjects. This specimen was from a girl aged 13; symptoms of chronic appendicitis were present, and when he removed the organ, a short stumpy appendix, it showed microscopically a typical carcinoma. These cases generally recovered, and did not have any recurrence in glands or viscera).—4. Tuberculous Pneumonia. 5. Intussusception of Ileum into Cæcum discovered post mortem in a boy aged 1 year and 10 months. There was no peritonitis. The child was brought to hospital without any definite history of abdominal symptoms, and while being examined died. He was well developed and in other respects healthy, and the abdomen when examined was flaccid. 6. Interstitial Nephritis. 7. Melanotic Sarcoma of Spleen and Liver. 8. Shirt Stud obstructing Larynx.

Dr. H. J. F. SIMSON: 1. Fibroid Tumour of the Uterus undergoing Red Degeneration and necessitating hysterectomy

at about four and a half months. 2. A similar specimen causing miscarriage at five months. Hysterectomy for hæmorrhage seven weeks later. At the commencement of pregnancy the fibroid was of the size of half a walnut. 3. Fibroid of Uterus causing impaction from growth in lower uterine segment and forward displacement of the right uterine artery. 4. Carcinoma of Body of Uterus with Pyometra. 5. Sarcoma of Body of Uterus with Polypoidal Growth. 6. Cauliflower Growth of Cervix. 7. Cauliflower Growth of Cervix—cauterised before removal. 8. Intracervical Carcinoma—atrophic uterus. 9. Intracervical Carcinoma spreading towards bladder.

Mr. S. G. MACDONALD: Closed Renal Tuberculosis showing upper portion of kidney completely shut off from the ureter so that the urine was sterile and free from pus or tubercle bacilli. In the early history of renal tuberculosis latent intervals in the symptoms and apparent progress of the disease were commonly noticed. A patient suffered from pyuria, frequency of micturition, &c.; after a varying interval the symptoms subsided and the urine became normal, but sooner or later the symptoms recurred, corresponding to definite pathological changes going on in the kidney.—Mr. MCADAM ECCLES remarked on the interest of this exhibit because of the apparently healthy condition of the urinary passages below the kidney.

Dr. A. K. THOMSON took the opportunity afforded by this meeting of introducing "The Man Who Grows," who claims to be able to increase his height at will by 7½ in., to increase the length of his arms by 4 to 15 in., and to elongate the neck by 2 in. without any dislocation or separation of joints. This acrobat stated he could never be sure exactly how much he would accomplish at a given demonstration and that the 7½ in. referred to above was his record. He then proceeded to demonstrate his power of elongating while in the standing position, and although he did not attain the figures quoted the exhibition was remarkable and interesting. On submitting himself to examination he appeared to possess, within physiological limits, an abnormal degree of spinal mobility and an unusual control over muscles which are but rarely voluntarily exercised.

UNITED SERVICES MEDICAL SOCIETY.

Regimental and Field Ambulance Training.

A MEETING of this society was held at the Royal Army Medical College on Feb. 12th, Fleet-Surgeon P. W. BASSETT-SMITH, C.B., R.N., the President, being in the chair.

Major J. OLDFIELD, R.A.M.C. (T.), read a paper on Regimental and Field Ambulance Training. Discussing the training of medical officers attached to combatant units in the Territorial Force, he drew a comparison between these officers and the medical officers of field ambulances, pointing out that the former, after completing their first training camp or course of instruction, may remain for years on the strength and yet never do a single duty for the battalion or come into contact with any of its officers or men. Even the maximum of a fortnight every two years in contact with their men and their work could not be considered at all sufficient to enable officers to keep in real touch with their duties. The case of the field ambulance officer is very different. He is obliged to attend camp once in three years, and this is expressly laid down as the minimum with the implied suggestion that he should attend oftener. The speaker laid great stress on this point, as he considered an efficient camp training to be the only real way in which a medical officer could be fitted for active service duties. The point, then, is that a regimental medical officer is encouraged not to attend camp more often than once in every two years, whereas the obligation is laid upon the field ambulance officer to attend camp not less than once in three years. No doubt the intention was to lighten the duties of busy practitioners willing to join the Territorial Force by providing a regiment with two medical officers attending training in alternate years, but the event has proved that it is easier to get the same class of busy men to go into camp year after year for the full fortnight in field ambulances than to get the full complement of regimental officers for camp duty every second year. The mere fact, therefore, of "making it easy" is not an inducement which attracts men to join the Territorial Force. Now, what are the duties that a regimental medical officer is expected to perform? It is often and fallaciously supposed that a regimental doctor's only duties are to attend to the sick of his unit in times of peace and to look after the wounded during battle. The truth, however, is very different. It is intended that he should be the commanding officer's right-hand man in all matters affecting the health of the troops or prevention of disease amongst them. He is responsible for the custody and use of medical and surgical stores and for the training and duties of the Royal Army Medical Corps men attached to the unit. He has to examine recruits in camp, see the sick, and be ready to deal with infectious cases and accidents according to the routine laid down in regulations. He has also to familiarise himself with his duties in action and to train the bandsmen in bearer drill and first aid. All these duties are very important, and it is hard to imagine how they are to be thoroughly performed by an officer to whom no incentive is held out to put in more than the minimum of training laid down in regulations. Major Oldfield recounted his own experiences of both regimental and field ambulance work, and described the increased efficiency with which he performed regimental duty during a temporary return to it after having served in a medical unit. He suggested: 1. That the one portal of entry into the medical service of the Territorial Force should be the field ambulance. 2. That from the field ambulances officers should volunteer for regimental duty not earlier than the close of their first year's training and 15 days' camp. 3. That a regimental medical officer should not be debarred from an annual camp but rather encouraged to attend it. Where there are two medical officers in a battalion one should be attached to a field ambulance for his camp and the other trained with his regiment. 4. That every medical officer should train one year in three with a field ambulance in camp. 5. That the annual training as to drills, riding, &c., should apply to all Royal Army Medical Corps (Territorial) officers. When they live at a distance from drill halls travelling expenses should be allowed. 6. That brevet rank should sometimes be conferred on officers showing zeal and ability, coupled with any special excellence, as an incentive to effort.

The following officers took part in the discussion:—Colonel J. HARPER, A.M.S. (T.), Lieutenant-Colonel W. SALISBURY-SHARPE, R.A.M.C. (T.), Major E. B. WAGGET, R.A.M.C. (T.), and Lieutenant-Colonel C. H. BURTCHAELL, Major S. L. CUMMINS, Major F. S. IRVINE, and Captain GRANT, of the Royal Army Medical Corps.

Major OLDFIELD thanked the officers who had taken part in the discussion, and brought the meeting to a close in a brief reply.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Patient.—The Position of the Radiographer in Relation to the Physician and Surgeon.—Adjourned Discussion on Bone Tuberculosis.

A MEETING of this society was held on Feb. 5th, Mr. J. M. COTTERILL, the President, being in the chair.

Dr. EDWIN BRAMWELL exhibited a patient, a single woman, the subject of Congenital Syphilis. She complained of weakness of both hands; this was first noticed at the age of one year and was said to have come on gradually, though it had not progressed. On examination all the small muscles of both hands appeared to be absent. The flexors and extensors of the fingers and wrists were, on the contrary, quite well developed. There was no alteration in the reflexes or sensation. Dr. Bramwell was of opinion that the condition had in all probability been a congenital one and only noticed for the first time at the age of one year. The fact that the condition was confined to the small muscles of the hand, that all the small muscles of the hand were involved, and that the defect was absolutely symmetrical, were the points upon which this conclusion was based.

Mr. ARCHIBALD MCKENDRICK read a communication on the Position of the Radiographer in Relation to the Physician and Surgeon. He said:—In this country there is considerable difference of opinion as to the status of the radiographer. There are two prevalent opinions. One, that the

radiographer should be merely an X ray photographer whose duty ends with the production of an X ray picture. The other is, that he should be a radiologist capable of helping his medical and surgical colleagues in diagnosis, and therefore on a level with the consulting pathologist, ophthalmologist, and other medical specialists. With the rapidly increasing work in the X ray department of the Royal Infirmary my colleague, Dr. Hope Fowler, and myself are frequently faced with problems involving the question of status. Are we, for example, to continue giving daily demonstration on the diagnosis of X ray negatives? Have we any right to publish the results of our own investigations of the radiographs taken on behalf of our medical and surgical colleagues? The medical managers of the infirmary have made us personally responsible for the safe-keeping of all radiographs taken in our department. They have further made it incumbent on us to classify and index all these according to region, disease, injury, &c. During the past year nearly 6000 radiographs have been taken in the X ray department and distributed to the various members of the honorary staff. Apart from the enormous amount of clerical work involved in the recording, collecting, and storing of the radiographs, the diagnosis and indexing of these entail an intimate knowledge of anatomy and pathology which is far beyond the sphere of a mere producer of X ray negatives. It is important, therefore, that the professional position of the radiographer be fully discussed and accurately defined. I do not wish to bore the members of this society with details of radiography in other countries, but a brief description of the routine work in the X ray departments of other hospitals will, I think, help us in this discussion. In the hospitals of Paris all consultations on radiographs are held in the X ray department. In Brussels, which is typical of Belgium, all the X ray departments are small. The radiographs are sent to the physicians and surgeons. In Holland generally all consultations are held in the X ray department. In Hamburg, Berlin, Dresden, Leipsic, Munich, Frankfort, and Heidelberg the radiographs are examined in the X ray department jointly by the surgeon and the radiologist. Professor Albers Schönberg of Hamburg goes a step further than most of his continental fellow-workers in so far as he says that he does not consider it advisable for the radiographer to allow the original negative to pass out of his hands. Most of the large towns in this country have adopted the continental method of sending a written report instead of an X ray negative to the physician or surgeon. This routine obtains in London, Liverpool, Leeds, Birmingham, Newcastle, Glasgow, and Aberdeen. The Eleventh Congress of the American Roentgen Society in 1910 resolved that the roentgenologist retains the ownership of the Roentgen plate on the ground that it is an integral part of the documents of the case. The following are the terms of the resolution which was submitted and unanimously adopted by the Eighth Congress of the German Roentgen Society.

1. Roentgenology is a duly authorised medical specialty just as are laryngology, ophthalmology, &c.
2. The roentgenologist is a medical specialist, and as such, in accordance with the usual medical custom, is called in by the physician or the patient as a consultant to make or confirm a diagnosis.
3. The roentgenologist makes use of Roentgen examination in addition to the usual clinical methods. He alone decides what particular procedure shall be employed—radiography, radioscopy, &c.
4. All plates, diapositives, tracings, &c., prepared for the diagnosis of the case are the property of the roentgenologist, just as histological preparations belong to the consulting pathologist. The roentgenologist will, as a matter of courtesy, be always ready, if requested, to place his plates or prints at the disposal of the consulting physician or surgeon.
5. The supply of plates or prints to sick clubs or insurance companies is a matter of special arrangement. Further, in urgent cases it is the custom for the roentgenologist to place his plates, &c., at the disposal of the surgeon.
6. The Roentgenologist may at his discretion place a copy of the plate at the disposal of the patient. This, however, is only to be done where it cannot harm or cause anxiety to the patient.

From the foregoing resolutions it will be seen that the question which I have taken the liberty of bringing before this society is no new one. It has been discussed at various congresses: Oporto, February, 1912; Prague, July, 1912; and at the French Congress at Nimes, October, 1912. I therefore lay the matter before you as deserving of your opinions.—Mr. DAVID WALLACE said that the plate was of the greatest value to the surgeon, while a mere report from the radiographer that a fracture existed or that there was a stone in the kidney was of little help. Some of the best plates he had seen had been made by men who were without medical training. It was very much what had happened in connexion with electrical procedures, which had passed out of medical hands into those who were not medical, but who did good work. Mr. Wallace was not at all sure that the method which Mr. McKendrick said had been advocated on the continent was that adopted in the United States. Then these resolutions had been passed at special meetings of radiographers. He was always delighted to have the interpretation of the radiographer, but he expected to have the plate sent to himself for interpretation.—Dr. D. CHALMERS WATSON said that some of the unsatisfactory radiographs were due to the instructions not having been precise enough. If he got a first-class print he had no desire to have the plate.—Mr. J. W. STRUTHERS asked, What position did Mr. McKendrick take up himself? One difficulty was that the radiographer had to be a specialist in everything—lungs, heart, bones, joints. The radiographer to be effective must be a specialist in one branch only—e.g., he might take up the respiratory system and perfect himself in this by using other means as well; if he confined himself to radiography it would not be of much value. The primary duty of the radiographer was to give a good plate.—The PRESIDENT said that the radiographer had first to establish the fact that he was equally skilled, or presumably so, with the surgeon or physician who sent the case before he could claim to discuss that case clinically. He had heard from radiographers the most arrant nonsense in the shape of diagnosis that could possibly be conceived.—In reply Mr. MCKENDRICK said that the infirmary managers had laid upon the radiographers the duty of collecting all the plates taken and of classifying them. Out of 6000 plates taken last year only 3700 had been returned.

Mr. JOHN FRASER, in the adjourned discussion on his communication on Bone Tuberculosis,[1] said: At the last meeting of the society I drew attention to certain points in regard to the etiology and pathology of bone tuberculosis. I attempted to show the importance of the large percentage of cases which owed their origin to infection by tubercle bacilli of the bovine variety, and the necessary relation which such a fact bore to the ingestion of tuberculous milk. I traced the possible paths by which the infection spread to the bones and the joints, and I showed the greater liability of the joints to infection as compared with the bones; I laid special importance upon the fact that the bone marrow frequently becomes degenerated previous to its actual infection. I concluded the demonstration by describing the pathological changes in the bones, secondary to the infection by tubercle. I propose to-night to conclude the subject by very briefly outlining some points in regard to the pathology of tubercular joints. I shall recall to your minds some points in simple anatomy. Entering into the formation of the joints are the articular extremities of the bones, the articular cartilage, the epiphysis, the epiphyseal cartilage, and the lower end of the shaft, sometimes called the metaphysis. According to the attachment of the joint ligaments, there will lie within the joint either the epiphysis alone or the epiphysis plus a portion of the diaphysis—that is a point of great importance in the later pathology. The synovial membrane is supplied by a plentiful anastomosis of blood-vessels, and the supply is most perfect around the reflection of the membrane, and to this complete anastomosis the name of the "circulus vasculosus" has been applied; it is from the circulus vasculosus that the metaphyseal vessels pass into the bone. While there are no lymphatic vessels actually in the synovial membrane itself, there is a plentiful supply in the region of the circulus vasculosus, and a lymphatic connexion is established by means of perivascular vessels with the interior of the underlying bone. The only other point in anatomy to which I must allude is the structure of the synovial membrane. It is a connective tissue structure, lined with a flattened epithelium; beneath the cellular lining there is a condensation of connective tissue which forms really a basement membrane. Beneath this condensed layer there is a zone of loose connective tissue, interspersed with fat cells, and in that tissue there ramifies a complete anastomosis of blood-vessels. In discussing the pathology I shall describe it under the following headings:—(*a*) Development of the primary follicle; (*b*) changes in the synovial membrane; (*c*) changes in the cartilage; (*d*) changes in the blood-vessels; and (*e*) changes in the neighbouring bone. The infection is a blood-borne one, and the original development of the tubercle

[1] THE LANCET, Jan. 25th, 1913, p. 246.

occurs in the tissue of the vessel wall. It is usually of the chronic reticulated variety, and it is rarely that one finds it undergoing caseation. As it enlarges it develops into a typical follicle, and giant cells appear early; as in bone tubercle the giant cells are specially distinguished by their size and by the enormous number of nuclei which some of them contain. Secondary to the development of this primary tubercle various sequelæ may occur. 1. The tubercle may spread rapidly over the synovial membrane. In such a contingency it is probably of the acute type and it constitutes the miliary form of synovial tubercle. 2. The tubercle may extend generally over the synovial membrane, but it remains chronic, and the synovial membrane undergoes a fibrotic change. 3. The tubercle may become general, but in the interspaces between the tubercle there originates a quantity of granulation tissue, which gives to the synovial membrane an œdematous and velvety appearance: the granulating form of synovial tubercle. 4. The tubercle may remain localised, but the synovial membrane undergoes a fibrosis and is converted into a layer of dense connective tissue. And, pathologically speaking, these four possible sequelæ constitute the governing factors in the classification of the varieties of joint tuberculosis—the acute miliary, the chronic tuberculous, the granulating, and the fibrotic varieties. While the original follicle is developing changes are occurring in the articular cartilage, in the blood-vessels, in the neighbouring bone and the overlying soft parts. The changes in the articular cartilage are of two possible varieties, a *perichondral affection* or a *subchondral affection*. The *perichondral change* is the result of the extension over the surface of the cartilage of a diseased synovial membrane; the covered cartilage becomes degenerated, worm-eaten, and eroded—a perichondral ulceration. The covered cartilage undergoes a myxœdematous degeneration and later a true fibrillation. The subchondral affection is quite another thing. The tuberculous disease extends inwards between the articular cartilage and the underlying bone, lifting off the cartilage in large flakes or as a single composite mass. I have alluded to the endarteritis which follows the development of tubercle in bones, and an exactly similar condition occurs in tubercle of joints. When the endarteritis affects the metaphyseal vessels most important changes ensue, and these I shall speak of under the changes which occur in the neighbouring bones. When the vessels entering the bone from the overlying joint become thickened the narrow area which they supply becomes altered. It undergoes a fibro-myxomatous degeneration, and by doing so becomes especially susceptible to an infection by tubercle. Now it depends upon the anatomical relation of the part whether the entering vessels supply the metaphysis or the epiphysis, and such is the explanation of why in some instances the metaphysis is especially liable to infection, in other cases the epiphysis is the situation of choice. Change in the soft parts need not detain us; they are the changes which are spoken of as white swelling or gelatinous degeneration. Their pathological explanation is an increased deposit of fat in the parts and a certain degree of œdema.—Professor F. M. CAIRD said that what struck him forcibly was the extraordinary appearance presented by the blood-vessels; they were so remarkably like syphilitic vessels.—Mr. HAROLD J. STILES said that the treatment of tuberculous bone and joint disease was a very wide question, and that it must not be looked upon from the narrow point of view of the specialist or orthopædist. In Scotland there were only three large children's hospitals for treating these cases. In the in-patients' departments of these there were not a sufficient number of beds to enable these cases to be taken in and treated by conservative means. Consequently chronic cases from long distances had to be admitted and treated in the speediest possible way. The cases which belonged to Edinburgh were treated by some form of light splint which could be removed and massage employed. It was a very different matter, however, when one had to deal with advanced cases which arrived at the Children's Hospital from all parts of Scotland. These were the kind of cases which Mr. Stiles had to treat, and it was the least satisfactory. He had been accused of applying radical treatment to cases which might have been treated otherwise. There was no large hospital in Scotland where these cases might be treated conservatively. Under present conditions there was no use in taking in a case where the head of the femur was more or less destroyed, or where there was a large abscess down the thigh; it was equally useless to send them home untreated. They had to do their best. He had no hesitation in saying that the best, indeed the only, treatment in order to save the limb and often the life of the child was a radical operation—i.e., complete removal; there was no use opening abscesses or scraping sinuses, partial operations did more harm than good. Another point was the great improvement in the health of the child after the radical operation. There was a form of chronic poisoning which gave rise to the anæmic, pasty look and also to other symptoms in the child; all these disappeared after the radical operation. All that one asked was that the case should be sent before sinuses had developed; and if this were done a radical aseptic operation resulted in a cure. The ultimate result very largely depended on the amount of disease and the extent of the operation, but it also depended to a large extent on the care which was spent on the after-treatment. As regarded the splint, Mr. Fraser had pointed out the disadvantage of plaster, but Mr. Stiles wanted to point out the advantages. If the patient had to be sent far from a doctor the best way to keep the limb at rest was to apply plaster. One could not expect the mother to remove the celluloid splint and massage the limb, and if she did, more harm was likely to result than good. It would be a great advantage if there was an open-air hospital to send these patients to. It was to be hoped that a fair proportion of the money which the Chancellor of the Exchequer was going to devote to the treatment of tuberculosis would be spent in checking bovine tuberculosis and not in building sanatoriums.—Mr. A. G. MILLER said that Mr. Fraser referred to the large proportion of cases in which the bovine strain was present. That was not the experience in other places; in a recent French journal it was recorded that of 60 cases examined no bovine type was found. This was perhaps due to the fact that the milk was always boiled in France.—Mr. J. W. DOWDEN said that it was interesting to find from a doctor in China and from another in Labrador that tubercle of the bones and joints was exceedingly common, although milk was not drunk; that cervical gland tuberculosis was very rare, and when bone and joint disease did occur it was more frequent in adults than in children.—Dr. CHALMERS WATSON was interested in the striking vascular changes, not so much in connexion with tuberculous joint affections, but as regarded rheumatoid arthritis. He had no doubt as to the profound importance of the vessels in relation to the joints as being perhaps the primary factor in developing the latter disease. Recently Mr. McKendrick had examined 150 negatives of hands, some diagnosed as rheumatoid arthritis and others as tuberculous disease. In a great many of these there was no difference radiographically either in the changes in the bones or in their position.—Dr. A. COWAN GUTHRIE alluded to environment as a causal factor in tuberculosis.—The PRESIDENT said that the difficulties of treating tuberculosis were quite as great in an adult as in a children's hospital, not so much with the immediate but with the after-treatment. He advocated the institution of a surgical tuberculosis convalescent hospital, a place which would correspond to the Victoria Consumptive Hospital. He claimed that more distress, inability to work, and far more pain and suffering were brought about by surgical tubercle than by medical tubercle. If a case of excision of the elbow-joint is sent out three or four weeks after operation, systematic movements could not be carried out, the patient returned to his dirty, ill-ventilated home, and the case had no chance of cure. If such an institution were erected, it would not be costly, open-air sheds being the chief requirement. This would leave the infirmary free for other cases and would admit of patients who required prolonged treatment and nursing obtaining it. It was a duty which they owed to the community, and it would lighten enormously the responsibility and labours of infirmary surgeons. In such an institution each patient would remain for months and have a fair chance of recovery, which at present a large proportion have not. He thought that they should agitate and should urge that the first and most important thing wanted was such a convalescent surgical tuberculosis home.—Mr. A. A. SCOT SKIRVING, endorsing what the President had said, called attention to there being only two in this country—one near Liverpool and the other in the south of England. In these

the children suffering from tuberculosis of the joints and bones spent practically their whole day on the sands and the whole nights on the balconies close to the sea. It was a wonderful sight to see children with joint disease, spine disease, glands, &c., all being drawn on donkey carriages, some able to drive themselves, some led by relatives. At Berck-sur-Mer, near Boulogne, there were five such institutions, three with 1000 beds each and two with 2000 beds each.—Mr. FRASER briefly replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Polycythæmia.—Early Tabes Dorsalis.—Foot and Mouth Disease in Man: Aphthous Fever.

A MEETING of this section was held on Jan. 31st, Dr. J. F. O'CARROLL, the President, being in the chair.

The PRESIDENT showed a man, aged 57, the subject of Polycythæmia. On admission to the Richmond Hospital on Nov. 28th, 1912, he was wandering slightly in mind, was very short of breath, and had the deep purple colour of a very ripe plum. The cyanosis was present over the body, though to a less degree than in the face and neck; there was a trace of albumin in the urine, and there was a moderate effusion in the right pleural cavity. But for his extraordinary assurance that he was quite well, he looked as if he had not an hour to live. About 40 ounces of clear fluid were withdrawn from the right pleura, and he was kept under almost continuous inhalation of oxygen. Next day 10 ounces of blood were withdrawn and the oxygen was continued. On Dec. 2nd a blood count showed 7,500,000 red cells per c.mm. with hæmoglobin 105 per cent. Ten ounces of hypertonic saline solution were injected into the pectoral region, and the oxygen was continued. He was again wandering in mind and unconscious of his surroundings. On Dec. 4th he was again bled to the amount of 10 ounces, oxygen being continued. Next day a little over 40 ounces of clear fluid were taken from the right pleural cavity. A blood count gave 3,800,000 red and 7000 white cells, and hæmoglobin about normal. No abnormal forms were found. He was quite reasonable, and apparently comfortable. On Dec. 7th oxygen was discontinued, and 36 hours later a blood count gave about 7,000,000 red cells. Thirty-five ounces of fluid were withdrawn from the right side of the chest. He was again oxygenated for three days, and the red cells fell to 3,500,000. On Dec. 13th 50 ounces of fluid were taken from the right pleura. On Dec. 16th a blood count gave 7,450,000 red cells, on the 19th 9,250,000, on the 31st 6,250,000, on Jan. 15th, 1913, 5,500,000, and on the 22nd 6,500,000. An examination of the specific gravity of the blood showed that it was distinctly above normal. On Jan. 16th an X ray examination showed apparent dilatation of the aortic arch, appreciable both to right and left of sternum. There was no abnormality of the pupils, no aphonia, no tracheal tugging, no pain, no disparity in the radial pulses, and no sign of undue rigidity of the arteries.—Dr. T. GILLMAN MOORHEAD said he was struck with the variation in the number of red cells in proportion to want of oxygen. His experience in cases of chronic heart disease was that the number of red cells was greatly increased. He did not regard polycythæmia as any explanation of the symptoms, but was inclined to look on it as itself merely a symptom.—Dr. J. J. O'KELLY and Dr. W. M. CROFTON also spoke.

Dr. MOORHEAD showed a typical case of Tabes Dorsalis occurring in early life in a young woman. Shortly after admission to hospital Wassermann's test was fully positive. Salvarsan was administered, and since then the Wassermann had been negative; but he could observe no improvement in the symptoms. Some girdle pain was complained of since the injection. He invited suggestions as to the advisability of further injections of "606." A careful examination failed to produce any evidence of acquired specific disease, and there was no congenital history.—Dr. O'KELLY said that he had not seen any bad results from the repeated use of salvarsan in cases of locomotor ataxia, provided it was given in small doses. He thought there was no difficulty whatever in doses of 0·1 grm. Girdle pains were frequently found after the administration of salvarsan.—Dr. CROFTON referred to a case of keratitis in which spinal symptoms developed after the second dose of "606," but cleared up on the third dose being given.—The PRESIDENT asked if anyone present had experience of intravenous injections of mercury on the same lines as salvarsan.

Dr. C. M. O'BRIEN related the history of a veterinary inspector who while in discharge of his duty was bitten by a suspected sheep on the finger and himself contracted foot and mouth disease. The patient was seen first a month after infection, complaining of malaise for a day or two previously. On examination the fingers and dorsal aspect of both hands were markedly swollen and covered with a dull reddish, raised rash, extending to an inch above both wrists. On close examination vesicles in process of formation were observable here and there over the surface of the rash, especially between the fingers and round the nails. Itching was complained of. On removing the dressing from the injured finger the wound gaped, but no pus exuded even on making considerable pressure. There was no perceptible involvement of the lymphatic glands. The throat was congested, with a few vesicles on the fauces. There were vesicles on the inside of the lips, gums, and side of tongue. The latter was swollen and somewhat tender. Speech, deglutition, and mastication were painful. Saliva copious. Temperature 100° F., and never exceeded this. Urine normal; internal organs healthy; reflexes normal. Next day all the symptoms increased, saliva trickled from the mouth, and a rash appeared on the dorsal aspects of both feet, similar to that on the hands, stopping short above both ankles. Ruptured vesicles on fauces now gave rise to small shallow ulcers with dark red base. Temperature 99·5°. Sir Charles A. Cameron and Sir Thomas Myles saw the case in consultation with Dr. O'Brien. The patient made an uninterrupted recovery, and, although not quite up to normal standard of physical energy, he resumed duty within two months. Dr. O'Brien in his paper dealt very fully with the literature of foot and mouth disease in man from the first recorded case in 1695 down to the present.—Professor METTAM said that the possibility of infection in man was well known for the past couple of hundred years. The first authentic case of foot and mouth disease occurring in man was recorded about the middle of the eighteenth century, and since then from time to time similar cases had been reported. The incidence of the disease was much greater on the continent than in these islands, and it was most formidable in Russia and France. In 1880 there was a large outbreak amongst persons in Dover who had consumed the milk of cows suffering from foot and mouth disease, and at the time it was noticed that the incidence of the disease was greater amongst those who had used the cream. No observer had yet succeeded in isolating the germ that gave rise to foot and mouth disease, but that it was of a very virulent nature was certain, since a 300th part of a c.c. of the pus taken from a vesicle was capable of setting up a lesion in cattle.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Feb. 6th, Mr. Robert Jones, the President, being in the chair.—Mr. F. A. G. Jeans read a note on One of the Functions of the Cæcum. He had removed the cæcum in rabbits, with the result that fluid fæces were passed instead of the usual hard motions. The practical application deduced was that rectal salines should be large in quantity, as relatively more fluid was absorbed from the right half of the colon than from the left. In bad cases of peritonitis fluid might be injected with advantage directly into the cæcum or through the stump of the appendix.—Mr. F. T. Paul did not think the appendix could be used in cases where it had been found gangrenous, but tubes might be inserted directly into the large bowel.—Mr. W. Thelwall Thomas thought saline injections might be given through a rubber tube fixed in an appendix stump and would so obviate one of the difficulties of rectal injection which had the disadvantage of requiring the patient to be propped up.—Dr. Hugh T. Shaw thought the appendix and cæcum might, from the relative amount of lymphoid tissue they contained, have a protective function as well as absorptive.—Mr. Jeans replied.—Mr. A. Stookes read a note on Puerperal Mortality in Liverpool. The puerperal mortality in Liverpool had for years been lower than the average of England and Wales, in spite of the fact that there was so large a poor population having a grave general mortality. Quoting the statistics

of the medical officer of health in 1911, 74 per cent. of all births in Liverpool were attended by women with a mortality from sepsis of 0·59 per 1000 births; 26 per cent. of births were attended by doctors, with a mortality from sepsis of 1·8 per 1000 births. In the past six years doctors' cases were diminished in number, and during that time their sepsis mortality was nearly twice as great as many cases attended by midwives. In Liverpool there had been for nearly 50 years an active training school for midwives, so that Liverpool had trained midwives long before the Midwives Act. Mr. Stookes concluded that where midwives were well trained, worked under supervision, and with skilled help to fall back upon, they did the work on the whole better than a badly paid general medical practitioner who was busy with other cases often septic in nature.—Dr. A. A. Mussen (assistant medical officer of health of Liverpool) said the satisfactory state of the Liverpool puerperal mortality had been largely due to the Liverpool Ladies' Charity, which had trained midwives, so that while England and Wales had some 20 per cent. of the women trained and certificated, Liverpool had only 20 per cent. untrained. Practically all cases were now attended by women who possessed a certificate. There had only been one outbreak of puerperal fever in Liverpool in the practice of any one midwife since the health department undertook their supervision. Cases occurred usually as single cases, a few in groups of two. Each midwife was interviewed on the notification of a septic case, and her methods inquired into.—Dr. H. Harvey suggested that practically all cases in which doctors were attending were instrumental cases, and this was the opinion of several others who took part in the discussion.—Dr. R. J. M. Buchanan read a paper on Tumours of the Spinal Cord, and described with lantern slides four cases where the tumour was psammoma, sarcoma, hydatid, and cancer secondary to carcinoma uteri which had been removed three years previously. Dr. Buchanan appealed for early operation in such cases, and showed how in his cases the tumour was accurately located and had been easily removed, the results being most satisfactory.—Mr. D. Douglas-Crawford described two successful cases, and agreed that operation should be done if only for the relief of root-pain.—Dr. W. B. Warrington had seen nine or ten cases where the lesion had been successfully located. Tumours with no pain might give rise to difficulty. The nerves which convey sensations of temperature and pain had a rather long path in the cord before crossing, and so might give rise to some difficulty in locating a lesion. He thought operation was often attended by brilliant results.—Mr. Thelwall Thomas thought it a pity that cases should be allowed to go on so long before a diagnosis was made and something done. Improvement would naturally not follow when the cord had been long compressed. He said there was more danger in exploring the spinal canal than in exploring any other cavity of the body.—Dr. Buchanan replied.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Dr. Dobson, the President, being in the chair.—Mr. H. Collinson read a paper on The Importance of Early Diagnosis and Treatment in Acute Perforated Duodenal Ulcer. After dealing with the symptoms and differential diagnosis of the condition, he pointed out that mortality in operated cases was directly proportionate to the number of hours which had elapsed between the occurrence of perforation and operation. In 27 cases upon which he had operated during the last three years the mortality was 41 per cent. Of these, ten were operated on within 12 hours with a mortality of 10 per cent., ten cases operated on in the second 12 hours gave a mortality of 40 per cent., and in seven operated on after 24 hours had elapsed the mortality rate was 86 per cent. A number of points in the operative technique were discussed, and he pointed out that the performance of an immediate gastro-enterostomy was not necessary for the recovery of the patient and consequently should be reserved for those cases in which operation was undertaken very soon after the perforation had occurred.—Dr. T. Wardrop Griffith showed a case of Disseminated Sclerosis, of which the first symptom, noticed in October, 1912, was squint with diplopia. This, which was due to paresis of the abducens nerve, had to a great extent passed off. Marked weakness of one arm and then of the opposite leg soon came on in succession, but had undergone a striking improvement. There was no intention tremor or staccato speech, but though there had been great improvement the diagnosis was confidently affirmed on the great increase of the knee-jerk, on the Babinski phenomenon, on the presence of slight nystagmus on lateral movement, and on incipient atrophy of the optic nerve.—Dr. C. W. Vining showed a case of Malignant Growth causing pressure upon the main bronchus of the left lung. The patient was a male, aged 54 years, who had suffered with cough and breathlessness for two years, and who had had hæmoptysis on two occasions. The physical signs were greatly diminished expansion with reduced air entry over the whole of the left chest. X rays showed no evidence of growth or aneurysm. There were no tubercle bacilli in the sputum.—Cases were also shown by Mr. L. R. Braithwaite, Dr. M. J. Stewart, Mr. E. W. Bain, Mr. J. F. Dobson, Dr. A. Bronner, Mr. L. A. Rowden, Dr. C. Oldfield, Mr. R. Lawford Knaggs, Mr. Alexander Sharp, Dr. R. A. Veale, and Dr. G. W. Watson.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 22nd, Mr. W. G. Laws, the President, being in the chair.—In opening a discussion on the Medical Aspect of Education, Dr. L. W. Marshall said that the aim of teachers should be to produce first physical fitness and then mental culture in their scholars. The various parts of the body developed at different periods, and the attention of teachers should be drawn to these periods. Speaking generally, private tuition was bad. It was most important that the preparatory schools should be good and such as gave great attention to the early development of the body. "Only" children were greatly to be pitied. The kindergarten system was the best for the ages of 4 to 7 years. From the seventh to the ninth year neuroses were developed and should be carefully watched. At this period the teeth were changing and sleep was apt to be affected. After the ninth year the cardio-vascular system developed enormously. From the seventh to ninth years discipline should be enforced; mental pressure might be developed from the ninth to the thirteenth years. This was a period when the "will power" was developing, and just preceded the commencement of the sexual development at the age of 13 years.—Dr. Sarah Gray laid great stress on eliminating all physical defects. She paid great attention to the "nervous" child—i.e., one of exalted sensibility. The objects of the teacher should be to (1) make the child a healthy animal; (2) avoid stimulation in every way; (3) provide for ample sleep; (4) allow the child a definite amount of leisure time daily to itself—i.e., to allow it to amuse itself; and lastly, not to overwork the child—especially between the years of 9 and 13.—The discussion was continued by Dr. S. E. Gill, Dr. J. S. Bolton, and Dr. W. Hunter.

DR. RANKING MEMORIAL: TUNBRIDGE WELLS.—The endowment of a bed in the local general hospital has been decided upon as the form of the memorial at Tunbridge Wells to Dr. John E. Ranking, who was killed in a motor accident at Bexhill in September last. Both rich and poor have subscribed to the fund, the donations ranging from one farthing to 100 guineas. Just over £200 are still required to raise the £1000 which is needed, and the fund will remain open until April.

TAUNTON AND SOMERSET HOSPITAL.—The annual meeting of the subscribers to the Taunton and Somerset Hospital was recently held under the presidency of the Hon. H. B. Portman. The medical report was satisfactory, and the financial statement showed that during 1912, in addition to the investment of £13,726 bequeathed to the hospital by the late Mr. J. Cook, the committee had also invested £1059, being the surplus of income over expenditure. This satisfactory result is due to the exceptional amount which has been received from bequests and special donations, especially the sums of £1000 each for the endowment of two beds presented by the Hon. Mrs. Portman and the Hon. H. B. Portman respectively, in memory of the late president, the Hon. E. W. B. Portman. During the past year the honorary medical staff had been increased by the appointment of Mr. A. J. H. Iles, M.R.C.S. Eng., L.P.C.P. Lond., as medical officer in charge of the newly established electrical department.

Reviews and Notices of Books.

A Manual of Immunity for Students and Practitioners. By ELIZABETH T. FRASER, M.D. Glasg., late Assistant Bacteriologist Glasgow Royal Infirmary; Beit Research Fellow. Glasgow: James Maclehose and Sons. 1912. Pp. 199. Price 5*s.* net.

THIS small volume is a very successful attempt to place the fundamental facts of immunity and their application to modern medical practice before the practitioner and student of medicine. It might also be read with profit and pleasure by any scientifically educated layman interested in medical progress, for the author's style is, at least, less arid than that usual in scientific text-books. As she remarks, it is obvious that the physician can no longer be a "mildly interested looker on" while others apply to practical medicine methods of diagnosis and treatment which are based on the study of immunity, or "he will be forced into the position of a passive transmitter of ideas which are entirely beyond his grasp." The author appears to think that what she describes as the "almost wanton" introduction of new terms has scared the practitioner from a study of the subject. Naturally, therefore, an attempt is made in this book to clear the subject of technical terms. It is, however, a difficult matter to make more than an apparent clearance, and is largely in this case effected by relegating such terms to a glossary at the end of the book.

Though the work is not technically divided into two parts, the subject is treated in two sections. The first deals with immunity in general, viewed from a threefold standpoint as it relates respectively to the body fluids, the body cells, and the varying resistance of the micro-organism concerned in an infection. This portion is excellent, the facts are well arranged, and the fundamental ideas are not lost in a cloud of detailed observations. The result is a well-balanced account of the importance of the various factors of influence in the production of immunity and of the share which the various schools of bacteriology have taken in their elucidation. The second portion, occupying about half the book, deals with immunity reactions applied to therapeutic and diagnostic ends. This portion is, perhaps, scarcely so satisfactory as the earlier part of the book, a fact which probably arises from the nature of the subject rather than from the method of treatment. The necessary compression of statement renders it impossible to give the clinical basis on which belief in the therapeutic or diagnostic efficiency of the methods is founded. As the author says in reference to the value of vaccines in treatment, this has to be based on individual clinical impressions and not on any scientific data. The view of the desirability of preventive inoculation with antidiphtheritic serum is more strongly held than is usual in this country, and the recommendations of the French Academy of Medicine are quoted in support. In the section on reactions used for diagnostic purposes the complement-fixation test and its derivative, the Wassermann reaction, naturally occupy a prominent position. The technique devised by Boas is strongly recommended for the Wassermann reaction, though it is certainly not a simplification.

The book is not a laboratory manual, and therefore technical descriptions of methods are not always complete; there is an omission of any reference to agglutination in relation to Mediterranean fever. Chapters on anaphylaxis and chemotherapy, together with a statement of Ehrlich's side-chain theory, complete the work. It is certainly a book to be recommended to the practitioner and is presented in a pleasant and well-printed form.

Die Störungen der Sehfunktionen. Von Dr. W. LOHMANN. Leipzig: F. C. W. Vogel. 1912. Pp. 206. Price, paper, 10 marks; bound, 11.50 marks.

THE need for an up-to-date introduction to the study of what is ambiguously termed physiological optics has long been felt by those whose enthusiasm carries them beyond the everyday routine of ophthalmology and neurology. The need has been met to some extent in this country in a recent book by Mr. Major Greenwood, jun.

The present work covers somewhat similar ground, but has the advantage of giving recent references to literature, so that the study may be extended and amplified if desired. Hitherto information has had to be sought in vast treatises like Helmholtz's Physiological Optics or Nagel's encyclopædic so-called "handbook" of physiology. In both the exposition was intended for the pure scientist: there was much that was beyond the requirements or possible scope of the clinician, and there was little or no reference to pathological states. Dr. Lohmann throughout deals with the subject in direct relationship to diseased conditions. After a preliminary section on the physical, physiological, and psychological aspects of vision he considers blindness in its various relations, chiefly psychological. Visual defects due to refractive errors are next reviewed briefly, and such conditions as metamorphopsia and the entoptic appreciation of opacities of the media. The next section treats of the abnormalities of central and peripheral vision with their physiological bases. A valuable chapter discusses the anomalies of adaptation and the light sense, anomalies which often do not receive due recognition from ophthalmologists. Retinal adaptation and the peculiarities of vision in a dull light are adequately discussed, and von Kries and Hering's theoretical considerations reviewed. Colour vision occupies two chapters, devoted respectively to congenital and acquired defects. The succeeding chapters deal with chromatopsias, "colour hearing," binocular vision, defects from lesions of the visual paths and centres, and subjective optical phenomena.

There is little new in the book, but as an introduction to the more recondite problems of vision it can be warmly recommended. It is exceptionally well printed and illustrated.

A Text-book of Obstetrics. By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Seventh edition. With 900 illustrations, 50 in colours. London: W. B. Saunders Company. 1912. Pp. 1013. Price 21*s.* net.

IF but little need be said about a text-book which has reached its seventh edition it is none the less fair, from time to time, to notice the various steps in its revision which enable it to continue to hold its own. A change has been made, for example, in the arrangement of the chapters of this manual; the physiology of the process of generation precedes the pathology, with the exception that sterility is considered in direct connexion with normal conception, while malpresentations are naturally included under the head of the mechanism of labour.

The author considers that it is right to include the diseases of women and their treatment as a necessary part of obstetrics, and this plan has been continued in this edition. The contention that the consequences of child-bearing constitute the majority of the diseases of women is, of course, quite a sound one, but at the same time it is a question whether an attempt to combine the two subjects in one volume is not a mistake, and apt to lead to an imperfect account of both. However, in the present work the author has accomplished his purpose well, and, as he points out, the master of a modern maternity service is the only specialist in command of sufficient clinical material to be a qualified expert. It is interesting to learn that some of the

best medical schools in America have dispensed with a separate department for teaching diseases of women, and that the rest will probably do the same eventually, to avoid the unnecessary duplication and the imperfection of teaching inevitable, in the opinion of the author, if the two subjects are separated. The attitude can only be maintained with difficulty. To the inclusion of an article on diseases of the breast in a work devoted primarily to obstetrics there are, in our opinion, many objections. Perhaps the practice in America differs, but we imagine very few obstetric physicians in this country ever undertake the treatment of any of the diseases of the breast which are not immediately connected with child-bearing. Certainly in this country the general surgeon is likely to acquire a much greater experience in diagnosis and treatment in these matters than the obstetrician and gynæcologist.

The whole work has been revised and in large part rewritten. The author apparently is not much in favour of pubiotomy, and would limit the operation to cases in which the head is impacted low in the pelvis and in which there is insuperable obstruction from a contracted outlet, or to mento-posterior positions of a brow or face with the cervix fully dilated, two classes of cases in which the majority of operators would consider pubiotomy certainly not indicated. On the merits or defects of extraperitoneal Cæsarean section Professor Hirst does not apparently express any decided opinion.

Though the book contains a great deal of information it remains unequal; thus the section on the treatment of placenta prævia is excellent, while that on the treatment of accidental hæmorrhage is disappointing. In the latter condition the author seems to favour treatment by *accouchement forcé*, and no mention is made of the method of plugging the vagina, nor is there any clear distinction between cases of concealed and those of external accidental hæmorrhage. There are a large number of excellent illustrations, of which many are in colours.

A Treatise on Tumours. By ARTHUR E. HERTZLER, M.D., Ph.D., Associate Professor of Surgery in the University of Kansas. With 538 engravings and 8 plates. London: J. & A. Churchill. 1912. Pp. 725. Price 30*s.* net.

THIS work is evidently the outcome of a large amount of experience, alike in the clinical study of tumours, in their histological examination, and in the teaching of students; and we think that the author has attained his aim, which was, he tells us, to write a book which should provide for the student and the practitioner information both on the clinical and scientific aspect of tumours.

In the account of individual tumours and of the nature of tumour growth there is much that is original. Dr. Hertzler is inclined to hold that a modification of Thiersch's theory will best explain all the phenomena of the formation of new growths. He agrees with Thiersch that the primary change in the formation of a carcinoma is a lessened resistance in the connective tissue which permits the epithelium to proliferate. Further, he has observed that the connective tissue in the neighbourhood of a carcinoma contains fewer cells, losing in part its affinity for acid dyes, and therefore he suggests that the lessened acidophilic property of the connective tissue permits the invasion of the basophilic epithelium; or, to express it in another way, invasion of the connective tissue occurs whenever the basic power is excessive or the acidophilic power is reduced. The theory is ingenious, but it is doubtful how it will stand the test of time. The parasitic theory is dismissed with a somewhat brief description.

The several varieties of tumours are described in order, the tumours composed of simple tissues being taken first. In the account of the osteomas the author has not made it clear that the ivory and the cancellous osteomas have essentially different modes of origin, the ivory exostosis being derived from periosteum, while the cancellous exostosis is formed by the ossification of cartilage. Also in the description of the treatment he has not made it clear that it is necessary that the whole of the cartilage covering a cancellous exostosis be removed before the surgeon can guarantee that the osteoma will not return. In the account of carcinoma the author describes under the heading of basal-celled type the ordinary rodent carcinoma and he appears to think that it was first fully described by Krompecher in 1903. The name he uses is unfortunate, as the author himself remarks, for it is certain that these growths are not derived from the basal cells. He goes on to say that "Coenen has particularly expressed the belief that they develop from either the sudoriferous or sebaceous glands," as if this were a new opinion. But Coenen's paper did not appear till 1907, and this origin of these tumours had then been cleared up for nearly 30 years. The chapter on the general diagnosis of tumours is one of the best in the book, and the remainder of the work consists of a sound account of the tumours affecting the several regions of the body. The work gives a clear account of tumours, and the practical application of the facts which have been ascertained as to their nature is also clearly set forth.

Medical Diseases of Children. (London Medical Publications.) By T. R. C. WHIPHAM, M.A., M.D. Oxon. With 67 illustrations. London: University of London Press (Henry Frowde and Hodder and Stoughton). 1912. Pp. 417. Price 10*s.* 6*d.*

THIS new work on the medical diseases of children is a plain, straightforward account of the common complaints to which infants and young children are subject. It is clear, without specific intimation of the fact in any introduction or preface, that Dr. Whipham has addressed himself more to the student than to the practitioner. For examination purposes this work contains neither too much nor too little information; from the point of view of treatment the details are probably insufficient and certainly far too general. The illustrations, which are original and almost, if one may say so, artistic, make an outstanding feature of the book.

Inasmuch as the whole subject of the medical diseases of childhood is included in the scope of this work, and inasmuch as the total number of pages only amounts to some 400, it is clear that there can be no dallying with the refinements of style and the attractions of controversy. The book is businesslike and to the point from start to finish, and for the guidance of inquirers it may be stated that it is of about the same size, and of about the same standard of fulness, as Dr. Alfred Carter's well-known "Elements of Medicine." If there is such a thing as an English school of pædiatrics, this work of Dr. Whipham may be said to be thoroughly representative of it. As a late secretary, and always an active member of the Children's Section of the Royal Society of Medicine, the author records his experiences in these associations on almost every page of his work. Whether he has been altogether wise in ignoring so much of the work of French, German, and American writers is another matter. We think that the work of Czerny and Finkelstein on the disorders of nutrition deserves to be included in an up-to-date text-book of diseases of children, and we are disappointed to find that the closely allied triad of symptoms, tetany, laryngismus stridulus, and eclampsia, have not been grouped together according to the German method under the common heading of spasmophilic neuroses. The association of these symptoms with rachitis is referred to by Dr. Whipham, but the important fact that phosphorus has an almost specific influence in the treatment is not mentioned, and doubt is further cast on its efficacy

in the treatment of rickets in the more general manifestations of this disease.

In the chapter which deals with scurvy we notice the somewhat remarkable statement that the dangers due to the sterilisation of milk can be obviated by carrying out the process of sterilisation in small bottles, each containing sufficient for one feeding. "In this way the loss of alkaline salts can be reduced to a minimum, and the child be fed on a harmless and efficient food." On p. 197, in reference to the troubles of dentition, it is stated that when there are much redness and swelling a crucial incision over the erupting crown will generally cause an abatement of the symptoms. While thoroughly agreeing with this line of treatment, we cannot help thinking that the steps to be taken in dealing with the eruption of the canines, which usually give the most trouble, are not accurately described by the injunction to make a crucial incision. The crucial incision should, in the opinion of most dentists, be reserved for the molars, and linear incisions made in the case of the single teeth. Again, and with no wish to be hypercritical, we cannot help taking exception to the statement, on p. 125, that measles can be an "*exciting*" cause of tuberculosis; while on p. 339 we are told that enlarged tonsils are a "*reflex*" cause of nocturnal enuresis, which can hardly be true.

Owing to its general accuracy and temperate views this new work on the medical diseases of children is a perfectly safe work to put into the hands of a student.

Psychology: a New System based on the Study of the Fundamental Processes of the Human Mind. By ARTHUR A. LYNCH, M.A., C.E., L.R.C.P. Lond., M.R.C.S. Eng., M.P. In two volumes. London: Stephen Swift and Co. 1912. Pp. 814. Price 21*s.* net.

IT is unusual in these days to envisage the possibility of a science being born or re-born by a Minerva-like parturition in the brain of an individual thinker; and, outside the domain of metaphysics, where by prescriptive right every theoriser may spin a complete speculative web of his own, we hardly expect to find a writer claiming to expound a totally new system in any branch of knowledge. It may therefore be something of a shock to the reader of Mr. Arthur Lynch's "Psychology" to discover from the first pages of the work, and indeed almost from its title, that it purports to present considerations on the science of mind which are "new not only in regard to subsidiary points, but in the enunciation and solution of the basic problem of them all." This is a very large claim, and an author who makes it must expect to have his facts and arguments scrutinised very closely before his conclusions can be adjudged to be at once as new and as true as he represents them to be. It is impossible to pretend that Mr. Lynch's work supports this ordeal very satisfactorily.

The essential feature of his system is the differentiation in the working of the mind of what he terms the fundamental processes, or, as he elsewhere calls them, the non-analysable faculties. This has rather the familiar ring of the system of classification dear to the psychology of an earlier generation; and the sense of familiarity is deepened when we learn that these processes are discovered by "the old methods of mental analysis and introspection," eked out with the help of "elementary physiological facts." Of course, an old method may be put to new and more profitable uses, but it is difficult to see in what respects Mr. Lynch's analysis brings us to any clearer perception of the facts of mind. The fundamental processes which it reveals are, it seems, 12 in number—to wit, immediate presentation, conception of unit, memory, association, agreement, generalisation, feeling of effort, impulse, hedonic sense, sense of negation, conception of time, and conception of space. Now, though the bringing together of these terms as applying to conceptions on the same plane does, indeed, produce a certain sense of strangeness, and though the terms themselves in some instances are new or are old terms taken in unusual meanings, it is tolerably obvious that the aspects of mental activity which they connote belong to the regular stock-in-trade of psychology, and that the novelty which they possess may therefore be no more than verbal.

To decide whether they have any higher value we may turn to the exposition of some one of these fundamental processes. Let us take, for instance, memory: what has Mr. Lynch to teach us concerning this phenomenon? "Let us speak," he says, "of Idea as the image which the mind displays of a past experience, such as a particular sensation. ..... Memory is the Fundamental Process by which the Idea is made known as existing" (p. 28, Vol. I.). Now, if there is in this statement any departure from the current definitions of memory in psychological text-books, it is assuredly in the direction of confusion and inaccuracy. Are we to understand that the idea, taking the term in the peculiar meaning which the author attaches to it, has an existence apart from memory? If so, what is the "fundamental process" by which the mind "displays" it? If, on the other hand, it only comes into being through the operation of memory, how does the gratuitous introduction of this term, with its initial capital, add anything but obscurity to the discussion? It would be easy to multiply from other chapters of the work similar instances of confused thinking and nebulous phraseology, but this may suffice to show the general mode of treatment adopted by the author. If he has a mind to write on psychology, Mr. Lynch would be well advised to cultivate a more rigorous accuracy of thought, a keener spirit of self-criticism, and a simpler style.

Lehrbuch der Haut- und Geschlechts-Krankheiten. Herausgegeben von Professor Dr. ERHARD RIECKE, Leipzig. Zweite vermehrte und verbesserte Auflage, mit 17 Farbentafeln und 307 grossenteils mehrfarbigen Textabbildungen. Jena: Gustav Fischer. 1912. Pp. 756. Price, paper, 16.50 marks; bound, 18 marks.

THIS book, which is edited by Professor Riecke, of Leipzig, has been written by a number of German, Austrian, and Hungarian physicians, each of whom holds a high position in dermatology.

The chapter on what may be called general dermatology has been written by Dr. Gustav Riehl, of Vienna; this deals with the anatomy and physiology of the skin, and contains also an account of the symptomatology. Dr. Salomon Ehrmann, of Vienna, has written the section on acute and chronic eczema; Professor Riecke, of Leipzig, has taken all the scaly eruptions; Professor Bettmann, of Heidelberg, has written the articles on the vesicular and bullous eruptions; Professor Leo von Zum Busch, of Vienna, is responsible for the account of the skin lesions due to disturbances of circulation. Professor Török, of Budapest, has taken the diseases of the sweat glands and of the sebaceous glands, the alopecias, and the other affections of the hairs not due to hyphomycetic fungi. Professor Grouen, of Halle, has dealt with the tuberculous affections of the skin and most of the other granulomata. Professor Tomasczewski, of Berlin, has written on the new growths of the skin; Professor Riecke on ichthyosis and keratoma and similar conditions; and Professor Jesionek, of Giessen, has described the animal and vegetable parasitic affections of the skin. In the section dealing with the venereal diseases, Professor Bruhns, of Charlottenburg, has written the articles on gonorrhœa and soft sore, while the important subject of syphilis has been allotted to Dr. B. Buschke, of Berlin.

It will thus be seen that the editor has succeeded in

enlisting the aid of a very distinguished band of writers, and the result is all that might be expected. In a work on diseases of the skin the illustrations have probably a greater importance than in a work on any other subject, and in this volume they are above the average. There are many coloured plates which are excellent, and in addition many of the illustrations in the text have been printed in colours.

Tumours of the Jaws. By CHARLES LOCKE SCUDDER, M.D. With 353 illustrations, 6 in colours. London and Philadelphia: W. B. Saunders Company. 1912. Pp. 391. Price 25*s.* net.

"A BOOK without a smile" would be, perhaps, an appropriate general description of this volume. The feature of the work is the illustrations, which are more numerous than the pages, the author having brought together portraits demonstrating the awful ravages and gruesome distortions of the face that ensue when tumours in these regions are not detected and surgically treated in their early stages. New growths of the jaws, relatively speaking, are not common, and it is the infrequency of these cases that increases the responsibility of the practitioner.

The object of Dr. Scudder's monograph is, firstly, to assist the practitioner in determining in a given case what form of new growth is present and what is its best treatment. Secondly, to make vivid the picture of each tumour of the jaw by statistical story and by case history, so that the practitioner may recognise the new growths of the jaws in their early stages. Epulis, sarcoma of the jaws, benign tumours of the jaws, the odontomata, carcinoma of the jaws, the diagnosis and operative treatment of malignant disease of the upper and lower jaws, tumours of the palate, leontiasis ossea, and, finally, prosthesis are successively dealt with in nine chapters. As regards treatment, Dr. Scudder considers that the operation should depend largely upon the character of the tumour. A mutilating operation should not be done for a relatively benign form of malignant growth. On the other hand, a very thorough and much more extensive operation is demanded for the malignant growths than has been practised in the past.

The book is well produced, and is the first complete description of the growths of the jaws in American medical literature.

LIBRARY TABLE.

Another Device. By STEPHEN PAGET. London, New York, and Toronto: Hodder and Stoughton. Pp. 326. Price 5*s.* net.—The medical man who has not read "Confessio Medici" has much left to ponder and enjoy. And when he has accomplished that there yet remains for him "Another Device." Before he shall have finished that, let us hope that Mr. Stephen Paget will be ready with still another treasury of illuminating thoughts, expressed in that terse, direct, and startlingly apposite language which, as we said in reviewing the first-named book, constituted veritable links binding literature to medicine. In this, as in the former volume, the wide range of the author's themes is noteworthy; but here his purview is no longer limited by the horizon of medicine, but includes the wider activities of man, inclusive of woman and child. What a delightful cameo he carves of the Right Sort of Girl. How aptly she is compared with her predecessor of mid-Victorian days. "Fifty years ago she would have been called, by the women of that memorable time, a boisterous and undisciplined child. But she was not there fifty years ago; and, if she could have been there, she would not have been what she is here. The present state of things is the making of her; it is in every day of her life, every hour of her day." And finally, how adequately he sums her up: "They who know her a little, call her pleasant but superficial; they who know her well, call her a fine character but rather uneven; they who live with her, admire her faith, reverence, self-judgment, and passionate desire to make the right use of her life." And "her little world"—which is all of us, for do we not all know her?—"says that, if she does not marry and have children, it will be a dreadful waste of just the sort of girl who ought to do that." We can feel equally with the author as philosopher in his practical comment on the Influence of Berkeley, as man in the street, in his *reductio ad communia* of Heredity and Life, as artist in his impressions on the First Sight of Rome. There are times, it is true, when Mr. Paget is hypercritical, as when he says (p. 226), talking of style, "there is no style in *As it was in the beginning, is now, and ever shall be, world without end;* but it sounds well in Latin, *Sicut erat in principio, et nunc, et semper, et in sæcula sæculorum.*" Many, on the contrary, must feel that the English loses nothing of dignity or beauty by comparison with its Latin original. There is more serious and pertinent matter in such essays as Hospital Life, the Doctor's Opponents, the Genius of Pasteur, and the Revival of Phrenology, but treated always in the lighter rippling vein, which confers life and movement on the current of thought without obscuring its rocky bed below. We said, when reviewing Mr. Paget's earlier work, that the author was a notable maker of phrases. In the present book, speaking of a holiday, he says: "If it is more than eight weeks it is not a holiday. It is a house in the country." We also said that he knew his Juvenal and his Shakespeare, to which we may now add that greatest book of all, his Human Nature.

Fortschritte der Naturwissenschaftlichen Forschung. Herausgegeben von Professor Dr. E. ABDERHALDEN, Direktor des Physiologischen Institutes der Universität, Halle a S. Fünfter und Sechster Bände. Berlin, Wien: Urban und Schwarzenberger. 1912. Price, each Band, 15 marks; bound, 17 marks.—The subjects treated in the fifth volume of the "Progress of Natural Science" are the Origin of Sex, by Dr. Kammerer, of Vienna; the Telegraphon, by Dr. Eichhorn, of Zürich; the Foods Required by Adults in their Relation to Bodily Work, by Professor R. Tigerstedt, of Helsingfors; and a paper on Transplantation, by Dr. G. Axhausen, of Berlin. The articles which make up the sixth volume include such subjects as the Present Position of Nautical Science, by Professor W. Halbfass, of Jena; Geomorphology, by Dr. Rühl, of Berlin; Optic Sensibilisers in the Animal and Vegetable Kingdom, by Dr. Hausmann, of Vienna; and the Results of Radio-active Investigation, by Dr. Hahn and Dr. Meitner, of Berlin. There are only two contributions that will appeal directly to medical men—one on Functional Psychoses, by Dr. O. Bumke, of Freiburg i. B.; and the other on Regeneration and Allied Subjects, by Professor Barfurth, of Rostock, a subject which has special attraction for medical men who take an interest in pathological problems of regeneration largely treated from the point of view of the comparative anatomist. To profit fully from Professor Barfurth's exceedingly interesting and comprehensive paper the reader must have a good knowledge of invertebrate and vertebrate structure and embryology. The references to the literature alone run into nearly 20 pages.

Concerning Conscience. By H. JEFFS. London: James Clarke and Co. 1912. Pp. 278. Price 3*s.* 6*d.* net.—This book might very well have as its subtitle "Lay Sermons," and, indeed, we gather from the preface that Mr. Jeffs is a lay preacher among his other occupations. He writes in plain, simple language and with a manifest intention to be scrupulously fair, qualities which should ensure him a respectful hearing, even were his matter of a far lower quality

than it is. Mr. Jeffs's text is, in a few words, the Golden Rule, and we regret to say that he has no difficulty in pointing out how far, both as a nation and individually, we fall short of the standard set up thereby. He takes the various classes of the community—the business man, the professions, the politician, and, finally, women. On the whole, we agree with his estimate of the medical profession, and for a layman he has a singularly accurate appreciation of the responsibilities of a medical practitioner, but he has not quite grasped the position of the profession as regards "unorthodox" practitioners. In the case of the unqualified man, the profession is set against him because there is no proof that he has received a proper scientific education. But Mr. Jeffs proceeds to consider a case of a qualified practitioner (p. 158) who "knows, or believes he knows, that he is in possession of a specific or a method that is not endorsed by the official authorities, and that he subjects himself to a boycott that may mean his professional ruin if he follows the dictates of his conscience and administers his specific or puts his method into operation." No medical man would be boycotted for the possession of a specific if he laid its composition before his medical brethren, or for practising a method "that is not endorsed by the official authorities," unless, indeed, he should promise cure of a condition which his brethren, from the information at present at their disposal, must hold incurable. With his remarks as to journalism and literature we find no fault.

Suggestion and Psychotherapy. By GEORGE W. JACOBY, M.D., Fellow of the New York Academy of Medicine; Consulting Neurologist to the Hospital for Nervous Diseases in the City of New York. With illustrations. London: T. Fisher Unwin. 1912. Pp. 355. Price 7*s.* 6*d.* net.—The output of works on suggestion and psychotherapy shows no sign of failing, but it is becoming less easy to discover originality and freshness as qualifications justifying recommendation of a book on the subject. Dr. George Jacoby has compiled a thoroughly sound and comprehensive work, written in a scientific spirit without being couched in too technical terms. In the first part there are chapters on the organs of mental activity and on the contents and course of mental activity, in which the attempt is made to condense into a few pages normal cerebral physiology and psychology—a difficult operation. Suggestion as a psychic force is discussed in most of its bearings at considerable length. In the second part, psychotherapy, its justifiability and dangers, receive fairly extensive treatment. There is a chapter on Christian Science and on faith and prayer cures, and there are sections on the most important methods in scientific psychotherapy. With the general tenor and conclusions of the book we are in hearty agreement, but we feel that the "wise saws" of the author would have been rendered more enlivening by a judicious admixture of "modern instances."

Lehrbuch der Zahnkrankheiten für Aerzte und Studierende. By A.O. Professor B. MAYRHOFER. With 296 illustrations. Jena: Gustav Fischer. 1912. Pp. 340. Price 9 marks.—This volume is primarily intended for medical men who desire to specialise in dental surgery. The author has treated his subject in a thorough manner and has produced a volume of undeniable merit. A very fair idea of the way in which the various subjects have been approached may be gleaned from the section dealing with variations of the teeth. Not only is a full account given, but no less than 76 illustrations are included, and they depict practically all the variations met with. To the medical practitioner the section dealing with dento-alveolar abscesses will prove of practical value. The morbid anatomy is well described, and several illustrations are given showing the various positions on the face of sinuses from septic teeth. The pathology and treatment of alveolar pyorrhœa are not fully considered. It is possible that this condition has not attracted the attention of medical men on the continent as it has in this country, and this may account for the somewhat brief notice given to it by the author.

MISCELLANEOUS VOLUMES.

IN this column we deal briefly with a number of text-books which we have recently received relating to physics and inorganic chemistry.

A Handbook of Physics, by W. H. WHITE, M.A., B.Sc., A.R.C.Sc. (London: Methuen and Co. 1912. Pp. 667. Price 7*s.* 6*d.*), is written for the requirements of the first or intermediate examinations of the universities, a stage which, as the author points out, demands a very fair general knowledge of the subject, and one beyond which it is nowadays undesirable to trust to a single treatise. The fact that the book is briefly written has enabled the author to pack a wealth of material within the covers without sacrificing clearness of statement or continuity of treatment. For the benefit of the student of medicine a colon is inserted after the numbers of the paragraphs that he may omit from his consideration, while the letter "m" is suffixed to those questions amongst the list given at the end of the chapters which are regarded as typical of those set in medical examinations. There is thus no disguising the fact that the book is intended for examinational purposes, and in this direction the author knows exactly what is required and how best to serve up the materials to the advantage of the student. The book is in accurate touch with recent acquirements of knowledge, as evidenced in the sections on electrons, radio-activity, the ionic theory, and osmosis.

Practical Measurements in Radio-Activity, by W. MAKOWER, M.A., D.Sc., and H. GEIGER, Ph.D. (London: Longmans, Green, and Co. 1912. Pp. 151. Price 5*s.* net), is a book that is needed in view of the rapidly increasing importance of radio-activity in therapeutics, and the soundness of its contents is vouched for by the fact that it is written by two authors who have had the advantage of a training under the direction of Professor Ernest Rutherford in the physical laboratory of Manchester University. It is obvious that their acquaintance with the subject is an intimate one, but it is just this familiarity which has led them to write on too high a plane. Radio-activity is a comparatively new branch of science, and its developments, especially in regard to measurements, are not easy to follow by readers who have not had the laboratory advantages of the writers. In our view they assume too easily that the foundations of these developments have been laid in the minds of the readers. It would have been better, we think, if a short history of radium and radio-activity emanation, ionisation, and so forth, had been given in an introductory chapter, after which the very first opening sentence, "Electric currents through gases are usually very small, and except in cases of intense ionisation it is impossible to measure them with a galvanometer," would have been intelligible to a far larger group of readers than it can possibly be. To those, on the other hand, who are initiated into principles the book will be a valuable aid; it will no doubt rank as a standard work on the question of measurements, as it is manifestly based on thorough acquaintance with laboratory procedures.—In *Radium and Radio-activity*, by A. T. CAMERON, M.A., B.Sc. (published by the Society for Promoting Christian Knowledge. 1912. Pp. 184. Price 2*s.* 6*d.*), the author writes for those possessing a very elementary knowledge of physics and chemistry. This is not an easy task, but it has been done very well on the whole, and we do not hesitate

to recommend the book to what must be a wide circle of readers keen on acquiring an intelligent account of the story of radium and radio-activity from its starting-point to its present position. A similar want is provided for in Sir WILLIAM RAMSAY'S *Elements and Electrons* (London and New York: Harper Brothers. 1912. Pp. 173. Price 2s. 6d. net). This is a very charming historical account of the wonderful development of ideas as to the constitution of matter. Here we have set out in the most attractive terms why the electron is now regarded "as a kind of 'element' with much stronger claims to 'elementary' (that is, undecomposable) characters than the bodies hitherto ranked as 'elements.'" The story is admirably told, and sheds a light upon the subject which a numerous class will be glad to obtain.

Modern Inorganic Chemistry, by J. W. MELLOR, D.Sc. (London: Longmans, Green, and Co. 1912. Pp. 871. Price 7s. 6d.), presents the subject in the light of quite recent developments, and is modelled on a plan which is consistent with the modern ideas of teaching the science. What this plan is may be judged from the exhortation quoted from Karl Pearson as a text at the commencement of the preface: "The true aim of the teacher must be to impart an appreciation of method, and not a knowledge of facts," and again from Paracelsus, that "the power to recognise and to follow truth cannot be conferred by academical degrees." Facts are good enough for examinations, but the foundations of a real educational course can be lastingly laid only by the presentation of facts by scientific method. Recognising this principle the author has produced a really admirable text-book. The treatment of the subject shows a care to include all the important facts connected with the elements and their compounds known at the time of writing. ——*Practical Chemistry*, by P. A. ELLIS RICHARDS, F.I.C. (Second edition. London: Baillière, Tindall, and Cox. 1912. Pp. 149. Price 3s. net), is primarily written for the requirements of the preliminary science examination of the Conjoint Board and the first examination for medical degrees of the University of London. The book has evidently met with success, as we foreshadowed it would in our review of the first edition eight years ago. It presents the advantage of containing useful monographs on preparations, volumetric analysis, and elementary practical toxicology, in addition to a general scheme of qualitative analysis. The proofs have been carefully read; we have found no slips, but the second test given for fluorides on p. 24 is somewhat vaguely worded. ——*A Laboratory Manual of Inorganic Chemistry*, by JOHN B. EKELEY, Ph.D., Sc.D. (New York: John Wiley and Sons; London: Chapman and Hall, Limited. 1912. Pp. 128. Price 4s. 6d. net), is written as a laboratory companion to Professor Holleman's excellent "Text-book of Inorganic Chemistry," which has been more than once noticed in our review columns. The descriptions are clear and the illustrations of experiments are good. The book will be of service to beginners in the laboratory. ——*Chemical Theory and Calculations*, by FORSYTH JAMES WILSON, D.Sc. Edin., Ph.D., and ISIDOR M. HEILBRON, Ph.D., F.I.C. (London: Constable and Co., Limited. 1912. Pp. 138. Price 2s. 6d.), is a useful addition to the literature of chemical arithmetic. Apart from the mental exercise, the performance of the problems constantly keeps theory in the mind, and the examples here set out are well chosen, while their solution is made clear. The chapters on osmotic pressure and electrolytic dissociation are excellent, and a somewhat original feature of the book is that the authors have preserved as far as is possible a logical sequence of events.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XLV., No. 5. London: C. F. Clay, Cambridge University Press. 1912. Pp. 307–423 + xix.–xxxiv. Price 8s.—On the Part Played by the Suprarenals in the Normal Vascular Reactions of the Body, by G. von Anrep. Starting from the proposition that the existence of secretory nerves to the suprarenal glands may be regarded as definitely established, the author, at the suggestion of Professor Starling, set out to investigate the action these fibres have on the form of the curve of blood pressure when the peripheral end of the splanchnic nerve is stimulated. The curve does not present a simple rise and fall, but has two summits. The splanchnics were exposed extraperitoneally, all the nerves to the heart were cut. The two-phase rise of the blood pressure on stimulation of the splanchnic nerves was observed by Johansson and others. The second phase, as Lehndorff found, is accompanied by constriction of peripheral blood-vessels (even after denervation) and by acceleration and increased tone and augmentation of the heart (also after denervation). The author finds that the secondary rise and all the concomitant phenomena are due to the discharge of adrenalin into the circulation, and are absent after extirpation of both suprarenals. Every rise of blood pressure, brought about by the agency of the nervous system, thus involves the coöperation of the chemical mechanism represented by the suprarenal glands. — On Local Vascular Reactions and their Interpretation, by G. von Anrep. This is really a continuation of the foregoing paper, and deals with the cause of the constriction and rise of pressure observed by Bayliss in denervated limbs produced by splanchnic stimulation. Bayliss regarded the contraction of the blood-vessels as a local reaction of the vessel to increased internal pressure. The author produced reflex rise of pressure by stimulation of the central end of the sciatic. The change of volume of the limb was measured by a plethysmograph, and the experiment was so arranged that the suprarenals could be cut out of the circulation. The author finds that the increased internal pressure is due to the action of adrenalin, the secretion of which was increased under the conditions of the experiments. The dilation of blood-vessels, ascribed by Bayliss to the effect of lowering of internal pressure, was due to the direct action on the blood-vessel of asphyxial products. The author holds that a local form of reaction of the blood-vessel wall to changes of tension is as yet unproved.—Absence of Apnœa after Forced Breathing, by Walter M. Boothby. It has been noted that in some subjects forced breathing is not followed by apnœa. The author describes his study of his own case, for he presents the apparently anomalous phenomenon not merely of absence of apnœa, but even of a natural hyperpnœa succeeding forced breathing.—The Action of Carbon Dioxide on the Vascular System, by S. Itami. This is a short paper. The author attempts to determine the relative parts played by the central nervous system, by the blood-vessels, and by the heart in the rise of blood pressure caused by increased tension of CO_2 in the blood, and he comes to the conclusion that with small percentages of CO_2 the rise of blood pressure is chiefly due to increased action of the heart pump; with higher percentages—above 8 per cent.—active constriction of the vessels from stimulation of the vaso-motor centre (and probably from increased activity of the suprarenals) is the more important factor.—The Coagulation of Milk by Rennin, by J. Mellanby. The author investigated the ultimate mechanism involved in the coagulation of milk by rennin, and the nature of rennin, and in doing so compared the effects of gastric rennin and pancreatic rennin, and he finds that in coagulation the same general laws obtain in both,

but that pancreatic rennin is a ferment entirely different and distinct from gastric rennin. In both processes calcium salts may be replaced by salts of barium, strontium, or magnesium. The author puts forward a hypothesis as to proteolytic ferments which coagulate milk, which is fully stated in the original text.—Fatty Acid Metabolism in the Liver: II., The Relation of the Fatty Acids in the Food of Plaice to those in their Livers and Myotomes, by V. H. Mottram. Fatty acids of marine vertebrates have a very high iodine value, but they are not characteristic of vertebrates, for those of the mussel are also of high iodine value.—The Ferments of the Pancreas: I. Generation of Trypsin from Trypsinogen by Enterokinase, by John Mellanby and V. J. Worley. The following are some of the authors' observations:—The length of time taken by the activation process is a function of the amount of enterokinase added. Reaction proceeds most rapidly in neutral solution, is delayed by alkali, and stopped by acid. Proteins delay the activation process.—Broncho-dilator Nerves, by W. E. Dixon and Fred. Ransom. It is known that the vagus contains both broncho-dilator and broncho-constrictor fibres. The authors found that the bronchial muscles are supplied by powerful broncho-dilator nerves of sympathetic origin. The fibres proceed mainly through the rami of the first, second, and third dorsal nerves to the ganglion stellatum, and proceed to the lungs with the cardiac accelerators. A variable number of fibres pass down the cervical sympathetic, and these, like the others, have their cells in the G. stellatum. Adrenalin in an animal showing bronchial tonus causes active temporary dilatation, atropine causes passive permanent dilatation.—The Proceedings of the Physiological Society for Oct. 19th, 1912, include the following: F. W. Edridge-Green: Simultaneous Colour Contrast, XIX. E. M. Tribe: Effect of Adrenalin on the Pulmonary Circulation (preliminary communication), XX. J. B. S. Haldane: The Dissociation of Oxyhæmoglobin in Human Blood during Partial CO Poisoning, XXII. Nov. 23rd, 1912.—Ida Smedley: The Biochemical Synthesis of Fatty Acids from Carbohydrate, XXV. H. H. Dale: The Anaphylactic Reaction of Plain Muscle in the Guinea-pig, XXVII. H. Hartridge: The Sensation of Yellow, XXIX. W. M. Bayliss: A Simple "Frictionless" Tracing Point, XXXI. W. Burridge: Some Points on Excitation and Contraction in Muscle, XXXII.

Parasitology. Edited by G. H. F. NUTTALL, F.R.S., and A. E. SHIPLEY, F.R.S.; assisted by EDWARD HINDLE, Ph.D. Vol. V., No. 4. January, 1913. London: C. F. Clay, Cambridge University Press. Price 10*s.* Yearly subscription £1 10*s.*—The Fixation of Rabies Virus in the Monkey (Macacus rhesus), with a Study of the Appearance of Negri Bodies in the Different Passages, by H. W. Acton and W. F. Harvey, contains strong evidence in support of the view, advocated by these investigators, that the Negri bodies of rabies do not represent any parasite, but are the result of a development round nucleolar fragments in the cytoplasm of the ganglion cells. The size of the Negri bodies was found to steadily diminish on passage through monkeys, until they became almost ultra-microscopic. At first they were large and, with Mallory's iron hæmatoxylin and Bordeaux red, stained brown to black, but by the sixth passage they stained wholly black, being identical in staining reactions with the nucleoli. At the seventh passage, together with the development of the paralytic form of rabies, there was a very decided drop in the number of Negri bodies present, and this fall continued through the following passages. It seems, therefore, that the Negri body as found in the ganglion cell tends to disappear altogether from this region with the attainment of fixity of the virus. Bullocks injected with street virus showed large Negri bodies, whereas those injected with fixed virus showed none at all.—The Life-History of Dermacentor Variabilis, by Seymour Hadwen, consists of notes and observations on the life-cycle of this tick in Manitoba. The ticks were raised on rabbits and were found to drop off their host after each stage, the whole cycle from the egg to the adult occupying about 210 days.—New Trematode Parasites from Fishes of the English Channel, by William Nicoll, contains the descriptions of four new species obtained from the fishes of the English Channel at Plymouth. One of these new species, Podocotyle syngnathi, was found in pipe-fishes. The remaining three species—Lepidauchen stenostoma, Hemipera ovocaudata, and Derogenoides ovacutus—are each made the type of a new genus. The author concludes with a discussion of the affinities of the last two genera.—Trypanosomes Found in a Cow in England, by Alfred C. Coles, contains the description of a trypanosome found in the blood circulation of a cow from Dorset. Only two parasites were seen, but from their description it seems probable that this trypanosome is the same (apparently non-pathogenic) species that has been described from many other parts of the world.—In Memoriam: Wilhelm Dönitz, by G. H. F. Nuttall, is a short account of the life of this distinguished investigator. The article contains a complete list of his publications, including works on general zoology, anatomy, entomology, parasitology, medicine and surgery, pathology, bacteriology, and immunity. This remarkable versatility was also accompanied by very able administrative capacities, these being recognised by his appointment to the directorship of the Institute for Infectious Diseases at Berlin.—The Herter Lectures, by G. H. F. Nuttall, include two of the lectures delivered by the author at Johns Hopkins University, U.S.A., in October, 1912. The first lecture, on Spirochætosis, not only summarises the most important recent advances in our knowledge of this subject, but also contains many interesting original notes and observations. The author emphasises the fact that the various specific names given to the spirochætæ causing relapsing fever in man are merely convenient expressions in order to distinguish races or strains of different origin. They cannot be regarded as valid names, for virulence and immunity reactions are not adequate tests of specificity. In the second lecture, on Trypanosomiasis, the author succeeds in presenting a summary of the mode of infection of trypanosomiasis in both man and animals, and also an account of the powers of adaptation shown by trypanosomes.—Nuttallia und Piroplasma bei der Piroplasmose der Einhufer in Transkaukasien, by Dschunkowsky and Luhs, contains a description—in German—of the piroplasmosis of horses and mules in Transcaucasia. The horses were found to be infected with both Nuttallia equi and Piroplasma caballi. In addition, the authors noticed the presence of Nuttallia in a mule, and were able to infect both horses and donkeys by injections of its blood. Also a new species of Nuttallia—N. asini—is described from the blood of donkeys, in which animal it produces a somewhat chronic form of piroplasmosis.

Jahreskurse für ärztliche Fortbildung. January, 1913. Munich: Lehmann. Price 18*s.* a year.—In this number of the Annual Course of Post-graduate Study, Professor Pick contributes an article on the metabolism of proteins in the animal body, and Professor Lubarsch discusses the limitations of pathological anatomy and histology and its recent problems. Professor Pick gives a valuable account of the behaviour of albumin after injection into the blood stream, when it may produce the phenomena of anaphylaxis, and then discusses its digestion by the ferments pepsin, trypsin, and erepsin. Pepsin splits off from the

albumin molecule albumoses, peptone, and a residue, probably polypeptide, which does not give the biuret reaction. Trypsin resolves the greater part of the albumin or peptones into amino-acids, but there is a certain residue of unaltered "antipeptone." This is broken down, like other peptones, into amino-acids by the erepsin. Bacteria resolve the amino-acids into still simpler products. In patients with cancer of the stomach there is often an abnormal ferment in the gastric juice which splits the polypeptide glycyl-tryptophane into its constituents. Professor Lubarsch writes upon the signs of death having actually taken place, and then discusses the post-mortem signs of those diseases in which the pathological findings are not very distinctive, with special reference to the infective fevers, acute hæmorrhagic processes, and inflammatory conditions of the eye. The histological distinction between the granulomata and the recognition of the early stages of malignant disease also come up for review, but the descriptions do not include anything very novel. The statistics of tuberculosis at necropsy are also given for Düsseldorf as follows:—

Deaths from Tuberculosis.

1908	437 = 1·57 per 1000 inhabitants, and 10·75 % of total deaths.				
1909	485 = 1·48	,,	,,	10·36	,, ,,
1910	507 = 1·44	,,	,,	11·7	,, ,,

Tuberculous changes were found in 46·2 per cent. of all post-mortems in 1910, whereof the mischief was active in 22·8 per cent. and quiescent in 23·4 per cent. In children the figures were higher; tuberculosis, recent or old, was found in more than half of all cases coming to necropsy, the exact ratio being 60·9 per cent. in 1908, 62·1 per cent. in 1909, and 59·3 per cent. in 1910. Other observers are quoted who report tuberculous bronchial glands in 87 per cent. of all children dying between the ages of 6 and 16.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

AZODERMIN.

(CHARLES ZIMMERMANN AND CO., 9 AND 10, ST. MARY-AT-HILL, LONDON, E.C.)

Azodermin is suggested in the place of amido-azo-toluol as an application for promoting healthy granulation. Its constitution is that of amido-azo-toluol (scarlet red), in which the amido group is acetylated. This has the effect, it is stated, of rendering the compound non-toxic, symptoms having been noticed when ordinary amido-azo-toluol was used which resembled aniline poisoning. Azodermin appears to give particularly good results in the treatment of wounds caused by burns, and even in extensive lesions a sufficiently firm covering of skin was formed without taking further measures. In these cases no toxic symptoms were observed. Azodermin is applied in the form of an ointment containing 3 per cent. of the acetylated derivative.

MAGNESIA COMPOUND.

(SAVORY AND MOORE, LIMITED, 143, NEW BOND-STREET, LONDON, W.)

This is a simple and effective emulsion of the true hydroxide of magnesium. We carefully examined the preparation for objectionable constituents, having regard to its application in the ailments of infancy. We were not able to find any trace of alkaloid, neither was there evidence of the presence of metallic impurities. In short, it consists of pure magnesia hydroxide suspended in a fluid pleasantly flavoured with simple aromatics and carminatives. Whilst acting as an antacid it obviously does not develop gas, as is the case with carbonates. The preparation is free from sugar and alcohol. It is principally useful in fermentative indigestion, while it serves also as a mild laxative.

"ELYOS" STANDARD FOOD.

(H. W. MURFITT AND SONS, DOWNHAM-ROAD MILL, ELY, CAMBS.)

The analysis of this cereal preparation shows that it contains a comparatively rich proportion of the individual constituents of the whole-wheat berry. The proteins and fats are particularly high with a corresponding reduction in the amount of carbohydrates. It possesses a decidedly increased nutritive value compared with ordinary wheat flour. The following analysis supports this statement: Moisture, 11·83 per cent.; mineral matter, 1·70 per cent.; protein, 14·70 per cent.; sugar, 0·65 per cent.; fat, 6·60 per cent.; and starch and dextrin, 64·52 per cent. The amount of substance soluble in water was just short of 30 per cent., and amongst the soluble constituents found was a decided amount of dextrin, so presumably in the course of manufacture part of the starch is converted. The amount of mineral matter is further satisfactory, containing an important proportion of phosphates.

SUPREME OLIVE OIL.

(COSENZA AND CO., 28A, CLARGES-STREET, LONDON, W.)

This oil is put forward as of specially pure quality which adapts it particularly, though not exclusively, for medicinal use. Evidence in favour of its purity was obtained by a series of tests, directed, for example, to density, iodine absorption equivalent, and certain physical constants. With each and all the oil gave perfectly normal results, evidencing that it is pure and free from admixtures with foreign oils. Certain qualitative tests were also made which admitted of the same conclusions in regard to purity. Finally, the acidity of the oil was measured, and it was found to amount only to 1·41 per cent. in terms of oleic acid. In view of these results it was not surprising to find that the oil is entirely free from unpleasant odour and taste. It is a pure bland expression of the olive fruit.

LA PRESTE NATURAL MINERAL WATER.

(THE PYRENEAN WATERS COMPANY, LIMITED, 16, PICCADILLY ARCADE, LONDON, W.)

La Preste is a health resort with a thermal establishment situated in the Eastern Pyrenees, about 50 miles from Perpignan. The waters have been employed for a good many years in the treatment of affections of the urinary tract, cystitis, vesical catarrh, prostatitis, and so forth. The chemical analysis of the water does not offer a satisfactory explanation of its value in these disorders, for according to our examination the total solid matters do not amount to more than 11·20 grains per gallon, an amount which characterises those drinking waters known as soft. Amongst the mineral constituents the following were found: Silica, 3·22; calcium carbonate, 0·14; sodium chloride, 1·148; sodium carbonate, 0·312; sodium sulphate, 4·14 grains per gallon. It is curious to note that silica is one of the leading constituents, although the amount of this is small. However, experience has shown that a course of this water is beneficial in genito-urinary diseases, and it would seem that the explanation can hardly rest on the chemical story revealed. Possibly the extraordinary purity of the water—that is, its freedom from minerals—endows it with physical properties which in the *régime* of a course lead to a physiological process of demineralisation. The water is warm, but no claim is made in regard to radio-active properties. The establishment is situated amongst charming scenery, and the accommodation provided is well appointed. The water is supplied in bottles at the above agency.

New Inventions.

A NEW HYPODERMIC SYRINGE.

THIS syringe has been designed with a view to embodying the good points of syringes already in common use, while doing away with such defects as are met with in many forms. The barrel of the syringe is of glass, and is in one piece with the nozzle. This latter is made specially stout in order to prevent its being easily broken off, and fits such standard needles as are supplied to the Government of India.

The plunger is also of glass, and this combination of glass barrel and glass plunger secures that perfect suction action such as is seen in the better types of the all-glass syringe, which is so essential if accurate results are to be yielded. To the glass plunger is affixed, by means of a special "ball and socket" joint, a metal piston-rod with a screw thread, thus allowing the dose to be accurately regulated, and so an exact fraction of the contents of the syringe to be injected, in a manner usually possible in metal syringes but not possible in the all-glass ones. The syringe is contained in a metal guard fitted with a cap that is fixed in place on the top of the guard by means of a bayonet catch, thus preventing the piston from slipping out of the barrel. There are no washers connected with any part of the syringe, and hence the disabilities often met with in syringes fitted with washers are avoided. Since the syringe is so arranged that expansion of its various parts by heat causes these to slightly separate one from another it can, with all its parts screwed up tightly and with its needle fitted on to its nozzle, be put straight into actively boiling water and sterilised by boiling without fear of breaking; while after taking it out of the steriliser the syringe is ready for immediate use without further manipulations being necessary. The plunger being of glass is not softened by boiling and so has not to be occasionally renewed. The illustrations show the syringe when taken apart and the manner in which the glass plunger and metal piston rod are connected together. I have much pleasure in thanking Dr. Charles Slater, bacteriologist to St. George's Hospital, for his valuable suggestions in carrying out this idea.

The syringe can be obtained of J. H. Montague, 69, New Bond-street, W., and is supplied as an ordinary 1 c.c. syringe with divisions of 1/30th c.c., or as a special 1 c.c. syringe with divisions of 1/40th c.c., this latter form being thought to be useful for the hypodermic administration of tuberculins; also as a 5 c.c. or 10 c.c. syringe. The special 1 c.c. syringe is here shown.

E. L. HUNT, M.B., B.S. Lond., D.P.H. Camb.,
Clinical Pathologist to Mount Vernon Hospital for Consumption, and Assistant in the Bacteriological Laboratory, St. George's Hospital, S.W.
Upper Montagu-street, W.

AN IMPROVED CERVIX DILATOR.

THE usefulness of the principle of Fritsch's cervix dilator in minor gynæcological operations is beyond dispute, but in these days when aseptic surgery is aimed at by every surgeon its usefulness is very much curtailed, especially when one

has to depend on unqualified attendants, owing to the fact that the portion of the instrument to be introduced into the cervix has to be handled in screwing it on to the handle of the instrument. This objection has been obviated in a modification suggested by me and made by Messrs. C. J. Hewlett and Son, Limited, of Charlotte-street, London, E.C. In this modification the part to be introduced is fixed on to the bar, and the lower portion of the stem of the bar can be slipped into the universal handle of the instrument, and by a slight twist of the handle a bayonet catch renders the instrument fixed for use. After dilatation, through that piece, the handle of Size 1 is unfixed and the bar of No. 2 slipped into its place. This is fixed in the same way and used. The remaining sizes are used according to graduations. Instead of 5 I have increased the sizes to 7, and have put the whole in an aseptic metal case, with folding legs. This enables the case to be used in sterilising the instrument, with the aid of a small spirit lamp, and a small clip is also included in the case for facilitating the taking out the size required without any difficulty and inconvenience.

OGUNTOLA SAPARA, L.R.C.P., L.R.C.S. Edin.,
Lagos, Southern Nigeria. L.F.P.S. Glasg.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on Feb. 13th, Sir RICKMAN J. GODLEE, the President, being in the chair.

In accordance with the report of the Court of Examiners Diplomas of Membership were issued to 98 successful candidates.

It was resolved to issue, in conjunction with the Royal College of Physicians of London, Diplomas in Public Health to 12 successful candidates.

It was resolved to contribute 50 guineas to the Lister Memorial Fund.

It was resolved, on the recommendation of the Examination Committee, to make various changes in the regulations for the Primary Examinations for the Fellowship, and of these changes the most important was that in the examination in physiology two papers, each containing four questions, of which the candidate must answer only two, shall be set, and that two hours shall be allotted to each paper; and that the same arrangement shall be adopted for the written part of the examination in anatomy.

Mr. C. H. Golding-Bird was re-elected the representative of the Council on the Central Midwives Board.

The PRESIDENT reported that he had chosen Mr. G. H. Makins as Bradshaw Lecturer for the ensuing collegiate year.

A letter was read from Lady Butlin offering to present to the College a replica of the portrait of the late Sir Henry Butlin by the Hon. John Collier, which was exhibited in the Royal Academy a few years ago. The offer was accepted with appreciative thanks.

The SECRETARY reported that he had received from the executors of the widow of Mr. Cæsar Henry Hawkins a portrait by Zoffany of Mr. Pennell Hawkins, Master of the Company of Surgeons in 1778, and great uncle of Mr. Cæsar Henry Hawkins, the picture having been bequeathed by Mr. Cæsar Hawkins to his wife for life, and after her death to the Royal College of Surgeons, with the direction that it should be placed near the picture painted by Hogarth of Sir Cæsar Hawkins, Bart., brother of Mr. Pennell Hawkins.

The PRESIDENT reported that Mr. W. A. Maggs's period of office on the Board of Examiners in Dental Surgery would expire on March 12th, and that the vacancy thus occasioned would be filled up at the quarterly meeting of the Council in April.

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—A meeting of this society will be held at 11, Chandos-street, Cavendish-square, London, W., to-day (Friday, Feb. 21st), at 8.30 P.M., when Dr. F. M. Sandwith will open a discussion on Pellagra, and read a paper entitled "Can Pellagra be One of the Diseases Due to Deficiency of Nutrition?" A paper will also be read upon "Fatal Pellagra in Two English Boys, with the Results of Pathological Investigation of One Case," communicated by Dr. Charles R. Box and Dr. F. W. Mott, F.R.S. March 21st being Good Friday, no meeting of the society will be held on that day, but it is proposed to hold the next meeting on April 18th.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 22, 1913.

The Value of Post-mortem Examinations.

THE unusual application recently made to the Divisional Court in connexion with the death of Mr. HUGH CECIL TREVANION at Hove emphasises the fact that in the interests of justice the cause of every death inquired into by a coroner should be established in the fullest possible manner. Now the evidence on such an occasion is rarely, if ever, complete until a post-mortem examination has been held, and has been followed by such analysis as may be deemed advisable, and at any time such examination may have to be supplemented by elaborate research. At the first inquest in this case, quashed in accordance with the terms of Section 6 of the Coroners Act of 1887, it was proved that the deceased was a young man in the habit of taking veronal to induce sleep, and that at the time of his death he had veronal in his possession. A friend living with the deceased deposed to the effect that on the evening of his death he stated that he had taken an overdose and he asked that a medical man might be sent for. The medical man arrived and took such steps as were suggested by the symptoms, which were entirely consistent with veronal poisoning, but the patient died. A previous occasion on which an overdose of veronal had been taken by the deceased was described by his mother. The evidence, in short, seemed to corroborate the statement referred to as having been made by the deceased, and, as there was no suggestion of any threat of suicide having been uttered, it is not surprising that a verdict of death by misadventure from an overdose of veronal was returned by the jury without such confirmation as post-mortem examination and analysis might have supplied. As a matter of fact, the question of ordering a necropsy was discussed, and the mother of the deceased was desirous that there should be an adjournment for the purpose; but apparently one of her other sons thought otherwise.

The insistence of the mother, however, led to the exhumation of the body of her son, and the submission of of it to examination by Dr. W. H. WILLCOX and Dr. B. H. SPILSBURY. The result of their examination fully justified the action of the Home Office in the matter, for reports made by them were stated in the Divisional Court to show that veronal must have been taken by the deceased within an hour of the time when he became unconscious to the extent of 150 grains, his ordinary habit being to take a dose of 7 grains to induce sleep, followed by a second if the first was ineffectual. The lengthy course of the second inquest was followed with close attention by all interested in medico-legal matters, but the evidence on both sides was of a kind to make it almost a foregone conclusion that the jury would in their verdict attach no blame to anyone, but would find that the sale of veronal required further restriction. The evidence has been so fully reported in the newspapers that it is unnecessary to recapitulate it, and it is enough to say, in dealing with the legal aspect of the facts proved, that the verdict of the jury was a perfectly right and proper one. It was conclusively shown that the deceased died from taking a very large quantity of veronal, probably not less than 150 grains. This was a matter of scientific evidence as the result of examination and analysis, and the amount taken by a young man who had had personal experience of the drug and of the effects of an overdose precluded the idea of "accident" in the ordinary sense. Those associated with the deceased in his flat were very few in number, and they did not pretend to know how or when young TREVANION swallowed the poison which caused his death. That he should have done so with the intention of ending his life, or of alarming his friends, was not inconsistent with his character and previous actions, but there was no evidence that he intended to do either upon the night in question. A verdict of suicide or of accidental death would have entailed the jury forming an opinion as to the question of his intention, after being satisfied that he took the veronal knowing that he was doing so. The alternative to a verdict upon the lines suggested above would have been one of wilful murder against some other person. Mr. ROE, a friend who lived with him, obviously had opportunities to administer poison to the deceased, in addition to which he would have been a gainer by his death, and there was some evidence, contradicted however, that he was aware of this fact. There was no evidence to indicate that ROE had anything whatever to do with the veronal being taken by TREVANION, and the difficulty of causing another person to absorb so large a quantity of the drug without observing its presence was entirely in his favour. In addition to the absence of evidence of any sinister act or intention on the part of ROE, there was evidence of an independent character to the effect that his undoubted influence over TREVANION was used upon many occasions to restrain him from excess, alcoholic and otherwise, when indulgence in it would probably have had the result of shortening life. Any other verdict than that arrived at would have been founded upon conjecture, and as no fresh evidence as to the precise manner in which young TREVANION came to die is likely to be forthcoming, that point will have to remain undetermined.

The affair has had two results of some public importance. The council of the Pharmaceutical Society has recommended the scheduling of diethyl-barbituric acid as a poison,[1] and there can be little doubt that the Privy Council will approve the recommendation. Secondly, it has been demonstrated, so far as it needed demonstration, that the cause of death in every case inquired into by the coroner should be established with the greatest degree of certainty attainable, and that the inquiry is incomplete if anything is left to conjecture or opinion which can be proved with certainty by post-mortem examination. In the case of young TREVANION

[1] THE LANCET, Feb. 15th, 1913, p. 478.

the evidence at the first inquest seemed to point quite naturally to an accidental overdose, and this view would have received confirmation if post-mortem examination had revealed the kind of overdose to be expected in a case of accident. The case will no doubt be long remembered by coroners, and it is to be hoped that it will be understood and appreciated by public authorities, members of which are apt not infrequently to regard the cost of post-mortem examinations as an expense that coroners ought to endeavour to avoid. Mr. VERE BENSON, the coroner, summed up the case in a masterly manner, his fairness being conspicuous.

When to Operate in Appendicitis.

MUCH difference of opinion still exists as to the most suitable time for the surgeon to intervene in an attack of appendicitis, and the question was made the subject of a debate at the Medical Society of London on Feb. 10th. The discussion, which we publish elsewhere, was opened by a paper, which has already appeared in our columns,[1] from Mr. EDMUND OWEN, who spoke strongly in favour of operation in all cases of appendicitis as soon as possible after the disease has been recognised, and he was followed by a number of other surgeons who held the same views. The debate may therefore leave the impression that no other views are possible, and it is unfortunate that Sir GEORGE BEATSON, who had arranged to present the arguments of those who advocate a waiting policy, was unable to be present. No one supported this attitude, and there were no real differences of opinion expressed, for the only divergences that were mentioned referred merely to the management of certain of the details of the operation. It can hardly, therefore, be claimed that the discussion has enlarged our knowledge. No new suggestion was brought forward in favour of a waiting policy; but the reasons for adopting immediate operative treatment were well put, and their presentation by a number of surgeons showed, more clearly than if only one surgeon had spoken, the basis on which is founded the immediate operation for appendicitis.

The diagnosis of inflammation of the appendix does not, as a rule, present any difficulties. The localisation of the pain, the fixation of the abdominal muscles, often the presence of a palpable swelling in the neighbourhood of the right iliac fossa, with the added symptoms of inflammation, are, taken together, sufficient to indicate the condition. It is true that occasionally some of these signs and symptoms may be absent, and yet inflammation of the appendix may be present, but these cases are exceptional, and even in them it is nearly always possible to recognise the appendicitis when it exists. The difficulty arises after the diagnosis has been made. Should an operation be performed, and if so, when? There are those who claim that a very large proportion of the cases of appendicitis would recover even if no operation were performed, and urge that if an operation be done in every case as soon as the diagnosis is made, a great many unnecessary risks will be run by the patients. There is an element of truth in this statement. It is certain that there are cases which recover even if no operation be done, but it is by no means easy to determine in what proportion of instances this is true. While some put the percentage as high as 50, and some, indeed, even higher, it is probable that 30 per cent. would be a more accurate estimate. Some surgeons say that in mild cases it is better to postpone the operation to the "quiet interval" when all the inflammatory symptoms will have ceased, and when the operation of appendicectomy can be performed with a greater measure of success. It is true that the delayed operation is associated with a very small mortality; in fact, with many operators it may be said that no deaths occur after operations performed during the quiet interval. This is doubtless a very strong argument in favour of waiting until the acute symptoms have subsided, but the difficulty exists that it is not really possible to distinguish which cases may be safely left in this manner and which must be submitted to operation immediately the diagnosis has been made. There are cases whose only chance of life depends on an immediate operation, when the inflammation of the appendix is so severe that it has given rise to sloughing and acute perforation of the appendix. Should these cases be left, no quiet interval will ever arrive, but there will occur within a very short time an attack of septic peritonitis. The attack will be so intense that no time will be allowed for the localising of the sepsis by the formation of peritoneal adhesions; the peritonitis will be diffuse and a fatal result is practically certain. It may be answered that it is possible to distinguish these fulminating cases from the more common forms of appendicitis, and that an operation might be performed without delay in those cases in which the attack seemed to be of the intensely acute character. When, however, an attempt is made to draw up the diagnosis between various forms of appendicitis great difficulty is experienced in finding pathognomonic symptoms or signs. The temperature is of some value, but it is not absolutely trustworthy, for in some of the cases of the greatest severity the temperature may be not at all raised, even though a general peritonitis has commenced. The pulse is of more significance than the temperature, but it cannot be absolutely trusted, for in very severe cases there may be no increased frequency of the pulse. The sense of muscular resistance over the inflamed appendix is certainly of value in the diagnosis, but all surgeons with much experience have seen cases in which no resistance can be felt even though the inflammation is acute. The general aspect of the patient is worth something, and the sensation of pain is also important, but the surgeon who relies on these will sooner or later find that his trust has been in vain. There is no infallible way of deciding that the inflammation of the appendix is certainly of a mild form, and may with perfect safety be left until the quiet interval has arrived, and this, of course, is the great argument for immediate surgical interference.

At the meeting of the Medical Society of London the speakers were in practical unanimity in saying that in all cases the operation should be performed as soon as the diagnosis has been made. Some held that if an abscess be found the surgeon should content himself with the opening of the abscess, and should postpone the removal

[1] THE LANCET, Feb. 15th, 1913, p. 441.

to a later date, unless the appendix should present itself in the wound. With this exception, all agreed that the sooner the appendix was out of the body the better. Not until the appendix is removed can the surgeon feel certain that it may not form the starting point of an acute peritonitis. Many a time has it occurred that the surgeon has been able to remove an appendix on the very point of bursting; sometimes it has given way as it was being lifted with all gentleness out of the abdomen. Only too often it has happened in the past that the surgeon has found that even a delay of a few hours has sufficed to give rise to an acute peritonitis. In these circumstances surgeons feel and express themselves strongly with regard to the policy of procrastination, claiming that nothing but immediate removal of an inflamed appendix will offer the best chance of a successful issue.

The Biological Basis of Specific Therapy.

THE details which go to make the treatment of specific diseases by anti-bacterial remedies a practical success are many, and our knowledge of them is still in course of formation. The treatment of such disorders is, in principle, a branch of parasitology, and therefore, like the treatment of grosser parasitic infections, largely a matter of attention to detail. General principles do not take us far in the treatment of parasitic disorders, because success is mainly a question of getting a recognised specific remedy into effective contact with the parasite, and such a result is not to be compassed easily in microbic infections. It is one of the drawbacks to Professor EHRLICH'S well-known theory of immunity that it makes the process of resistance to an infecting organism more simple than it probably ever is in reality. The infecting organism is represented generally either as being phagocytosed, or else agglutinated or bacteriolysed by one or other of the hypothetical series of bodies whose pre-existence in all of us is invoked as the explanation of sundry observed phenomena, where probably several of these actions coöperate together to produce the result. To get a similar effect artificially will not be easy, and this explains, no doubt, many instances of failure in specific treatment with sera and vaccines.

An even greater obstacle to the effective treatment of parasitic disorders of every kind is the difficulty of bringing the remedy into effective contact with the parasite. Parasites being highly specialised beings in their manner of life, their habit is to settle themselves in situations where they will be as far as possible beyond the reach of anything noxious to them, and the result is that they are always difficult to dislodge. If this were not so, parasitic disorders would not exist. The medical practitioner, therefore, who sets himself to eradicate an infectious organism from any host, is facing no easy task; and though we may talk of bringing protective bodies into contact with bacteria, as a matter of fact such organisms locate themselves where, each in its own way, it will be beyond the reach of such a means of defence. Dr. SIMON FLEXNER has given a very good example of this in the case of the organisms which cause various descriptions of meningitis. The cerebro-spinal fluid is a non-albuminous liquid, and therefore the immune bodies in the blood penetrate into it with great slowness, whilst, on the other hand, the antibodies formed have no difficulty in getting out of it into the blood. It is consequently quite easy to manufacture protective sera against these forms of meningitis, but to get them into effective contact with the bacteria the method of lumbar puncture is indispensable. Similar reasons make Bier's bandage so beneficial in the treatment of infections of the joints, which, for anatomical reasons, are not very vascular structures. Though these are instances of the simplest kind, we may be sure that every other micro-organism, like every grosser parasite, contrives so to locate itself in the body of its host as to be to a very considerable degree protected against unfavourable influences of every description. The user of anti-bacterial sera and vaccines should, therefore, not be too optimistic about his chances of getting them to go where he wants them to go.

In the course of a bacterial infection the type of the organism may mutate or change into something else which may be either less virulent or more virulent than the original strain. In the former case a featureless recovery occurs, but in the latter case the patient will succumb unless he can manufacture a new set of immune bodies to cope with the new adversary. The phenomena of relapses or exacerbations in the course of a disease receive a good deal of support from such a hypothesis, amelioration being effected through the original strain of the organism being dominated by the protective mechanism to a certain extent, and then a new variety starting up which requires the business of cure to be begun again. The physician will be on the alert to this possibility, and it is most true that infectious disorders of all kinds are most liable to be scotched and not killed. Dr. FLEXNER suggests that, wherever possible, such variants or mutants, in Mendelian phraseology, should be isolated and employed for the purpose of making extra sera or vaccines, to be used upon the same or other cases. We have, of course, in this the germ of the idea of using polyvalent serums, only the organisms used in making such serums should not be selected at random. It will be manifest to the practitioner of medicine that if he is going to enter upon therapeutics of this refined order, the bald, sketchy views of serum-therapy with which most people are satisfied will not be sufficient for him. There is a tendency undoubtedly to regard serum-therapy and the analogous use of bacterial vaccines as something that will make the practice of medicine more easy in the sense of saving trouble. This is a serious mistake. The new modes of treatment may make the art of medicine more efficient, but they do not call for less use of the intelligence, and, as we have already observed, the eradication of parasitic organisms is never in any case a matter of easy accomplishment, because they are all of them in their different ways well protected against disturbance, though the fact may not be apparent at first sight. Were it otherwise there would be no such thing as a parasitic disorder. We must all of us go about the business of specific therapy heedfully, undazzled by the promise of quick success which a novel remedy always seems at first sight to hold forth.

Annotations.

"Ne quid nimis."

THE ADMINISTRATION OF THE PHARMACY ACTS.

THE annual report of the Registrar of the Pharmaceutical Society, which was presented to the council at the February meeting, contains *inter alia* an account of the work done last year in connexion with the administration of the penal clauses of the Pharmacy Acts, from which it is evident that the duty of preventing as far as possible the irregular sale of poisons is no light one. The number of cases of alleged infringement of the Acts which are reported and require investigation each year tends to increase rather than to diminish, but this is not necessarily because of greater laxity on the part of sellers of drugs, but partly because of the considerable growth in recent years in the number of persons who are entitled to traffic in poisonous substances. The number of names on the Pharmaceutical Register is fairly constant from year to year; the increase during the last decade has been considerably less than a thousand, the present Register consisting of the names of 16,330 persons. In 1909, however, a new class of poison sellers was created for the purpose of retailing, under a licence, poisonous preparations for use in agriculture and horticulture. The intention was that licences to sell such substances should only be granted to unqualified persons trading in districts where the existing facilities for obtaining them from chemists' shops were insufficient, but the local authorities which grant the licences have in many instances disregarded this intention, with the result that the sources from which potent preparations of arsenic and nicotine can be obtained readily are unnecessarily numerous. The work of supervising the distribution of poisonous compounds is therefore more onerous than it was prior to 1909. But the growth in the number of suspected cases of the irregular selling of poisons which the legal department of the Pharmaceutical Society has to investigate is not solely due to the increase in the number of poison-sellers, but is partly the result of other obligations imposed on the society by the Poisons and Pharmacy Act of 1908 and of the process of "speeding up" which is going on all round. This Act requires the certificate of qualification of the chemist by whom a pharmacy is conducted to be exhibited in every shop, and it is the duty of the legal department to ascertain if this requirement is being fulfilled. The report of the society contains no statement concerning the manner in which this regulation is being observed, but it is probable that among the reported cases of alleged infringement of the Acts were some in which the certificates were not exhibited. Last year a large number of shops were visited with the object of finding out if the certificates were exhibited, and since the Act came into operation practically all the pharmacies in the country appear to have been inspected. In the interests of the public this is a wise step to take, but, curiously enough, no public money is spent upon the work which the administration of the law relating to the sale of poisons and the business of the chemist entails. The report states that the number of pharmacists who are registered as superintendents of companies carrying on the business of chemists is 459, but as some of these companies have many branch shops it is not possible from the figures to calculate how many chemists' shops are under the control of joint-stock companies; it is common knowledge, however, that the number is increasing. During 1912, the year with which the registrar's report deals, 1362 cases of alleged infringement of the Act were investigated; this is an increase of rather more than 100 on the immediately preceding year, but compared with the year 1903 the increase is nearer 1000. It was only necessary, however, to institute proceedings in 238 cases last year, from which it may be inferred that the majority of cases reported were found on examination to have involved no irregular practice of more than a trivial nature. The class of offence which seems to be most common among unqualified persons is the dual one of keeping open shop for the sale of poisons and selling poisons; both practices are contrary to Section 15 of the Pharmacy Act, 1868, and the penalty for each offence is £5, recoverable through a county court. The use by unqualified persons of the statutory pharmaceutical titles is occasionally one of the offences committed, while the report shows that in several instances the council commenced proceedings against chemists who used the letters "M.P.O.," implying that they were members of the Pharmaceutical Society when such was not the case. Proceedings were also instituted against persons who had failed to observe proper precautions in selling scheduled poisons, but in the majority of cases the offenders were unqualified proprietors of drug stores. In eight cases of alleged infringement of the Acts it was found upon analysis that the poison asked for had been omitted from the preparations sold, and proceedings could not therefore be taken under the Pharmacy Acts. In three of these cases the vendors had sold compounds labelled "Paregoric" which contained no opium and were, therefore, not prepared according to the British Pharmacopœia; the vendors were proceeded against under the Merchandise Marks Act for applying a false trade description to goods and for selling goods to which a false trade description was applied and a conviction was obtained in each case. The report shows that the membership of the Pharmaceutical Society is steadily increasing; the society is now larger than at any period in its history.

THE ORIGINAL HUNTERIAN MUSEUMS.

THE examination of old museums is a fascinating if neglected branch of antiquarianism. The manner of acquisition of museum specimens is apt to be entirely overlooked by the makers of scientific catalogues, yet how delightfully such books would read if they were adorned with some such anecdotes as that which concerns the now extinct dodo. The dodo's feathered skin was brought to England by an old traveller and handed over to Sir John Tradescant, whose collection was afterwards known as the Ashmolean. In time it grew mouldy and was condemned to destruction in 1755 by some curators of a too exclusively classical education. Seeing the interesting relic on the already smouldering pyre, a passer-by cut off the dodo's head and one of its feet, and these, with another foot, a painting, a book illustration, and a few bones, are all we have now of the dodo. Again, there is the romance of how John Hunter acquired the skeleton of the Irish giant, placed in the Museum of the Royal College of Surgeons of England. The story is too well known to warrant re-telling, though the hearers of Sir Rickman Godlee's fascinating Hunterian Oration (see p. 507) were reminded of it when he pointed out on a well-drawn projection of Clift's plan of Hunter's Leicester-square house as it appeared in 1792 the discreetly private side door, "where Mr. Huger met the Irishman." Huger was doubtless Hunter's man, and "the Irishman" was the corpse of Mr. Byrne, the giant, dead of drink and consumption at the early age of 24. In his haunting fancy "The Child in the House" Walter Pater has described the potency of early domestic memories in the formation of an individual's psychic content. Clift was only a poor lad when in 1792 he came to work under John Hunter's directions in the original Hunterian Museum, and at a

distance of 40 years we find the pathetically faithful servant, now become conservator, able to sketch from memory at dead of night—his tiny pretty plan being dated 2 A.M., Nov. 1st, 1832—every little detail in the once-adored museum house. Thus he has set down such delightful trifling matters as the situation of Mrs. Hunter's sedan-chair, of Mr. Hunter's "afternoon bedroom or sofa bed," "great red japanned army chest" between the windows of the "House pupils' room," pictures such as "Harlot's and Rake's Progress," drawbridge, yard for washing whale and carriage, and books, prints, and "dry preps. pathological." The plan gives a good idea of an eighteenth century museum, and we are struck by certain very modern touches. Thus, Hunter's desk was of the slide-top kind, and the theatre and other rooms were warmed—very badly, says Clift—by hot air from two of Jackson and Moser's stoves. Of the backyard it is recorded that "no grass grew," and that it was called "the garden"; there were also deep areas, as there might be now. Clift has left one of his careful MSS., containing minute details as to the expense of shifting the Hunterian Museum in wagons from Leicester-square to Lincoln's Inn Fields. Another of his small sketches represents the Museum in 1810. This was admirably reproduced on a large scale to illustrate the Hunterian Oration this year, and though it shows dignified vistas of vaulted roofing it is hard to discover where the specimens were shown. We know, however, that Clift devoted his laborious life to the setting out of the fine Hunterian specimens, contained in red-stoppered bottles, of which there remains Clift's MS. list. The same indefatigable worker alludes, in his curious unpublished year books of work done, to a forgotten function of the College, the fitting out of the scientific side of several famous Arctic expeditions. Of these expeditions only printed records remain in the College library, but at the present time it would be of great public interest if any relics of Ross, Franklin, and others could be unearthed and exhibited. Captain Cook's little MS. log-books, for instance, now form part of the priceless Marsden Library at King's College, London. In these appears the list of the names of the crew of Cook's ship according to the Otahitian pronunciation. The Captain himself figures as "Tute," and by this name recent travellers tell us he is still known by the descendants of the men who murdered him because they loved him so well that they wished to retain his divine ghost in their midst. Museums and libraries, in fact, are romantic through the associations of their contents, among which lurk unconsidered details often strangely confirmatory of fact observed at the ends of the earth.

UNUSUAL ILLNESS AMONG WEAVERS OF COTTON CLOTH.[1]

CASES of primary aspergillosis are very rare, and in an account of illness affecting weavers in four sheds in Lancashire Dr. E. L. Collis suggests that this was the most likely cause. The symptoms developed very acutely with febrile disturbance, asthmatic attacks, and characteristic cough. The process common to all the weaving sheds in question differed from the usual manufacture of cotton cloth in that addition of the antiseptic zinc chloride (usually added to prevent occurrence of mildew on the cloth at a later stage) was omitted, as dyers specify that no chlorides shall be present in the cloth. Obviously cotton threads passed through size and quickly wound, while still containing moisture, on to the warp beam, furnish conditions favourable to the development of moulds. Under such circumstances mildew is not infrequently seen, but in these cases more attention seems to have been given to the unpleasant odour given off from some of the warps, suggesting the possibility of the liberation of gas, than to the isolation of the fungi present. (Di-ethyl-arsine liberated when penicillium brevicaule grows on arsenical wall-papers is an example quite to the point.) Neither the symptoms among the weavers nor chemical analysis, however, lent support to the view that injurious gases were a cause of the trouble. No unusual mould was found in the sputum, so that it is only by inference that the theory of aspergillosis was arrived at. The remedy for the condition which has proved effective—addition of formaldehyde to the size—also favours it. Primary pneumomycosis is noted by Rolleston and Latham, in accordance with the description of Chantemesse and Widal, as an occupational disease among two very small classes of persons in Paris: (1) those making a bolus of seeds in the mouth as a preliminary to artificially feeding pigeons; and (2) hair sorters who inhale the flour of rye used to enable them to separate the hairs more readily. Both aspergillus fumigatus and aspergillus niger are parasitic and believed to produce morbid changes in the human body. In this connexion a remarkable account is given in the December issue of the *Journal of Hygiene* by G. Massee, of the Jodrell Laboratory, Kew Gardens, of a fungus, cladosporium herbarum, which produces black spots on the surface of chilled meat. In its adaptation to this unusual substratum the fungus has so far departed from the normal type of species that the typical form of reproduction by spores has been abandoned and has been replaced by a secondary and lower form of reproductive bodies—chlamydospores—immersed in the substratum produced from specialised cells of the vegetative hyphæ of the fungus.

[1] Report on Unusual Illness among Weavers of Cotton Cloth. By E. L. Collis, M.B. Oxon., H.M. Medical Inspector of Factories. London: Darling and Sons, Limited. 1913.

DWARFISM ASSOCIATED WITH DYSTROPHY OF BONES AND MUSCLES.

ABOUT a year ago M. Hutinel, of Paris, gave a description of a peculiar form of retardation and perversion of growth which he had been able to separate from the crowd of indefinite cases of malnutrition attending his hospital clinic. Since that time—indeed, within a few months—Dr. Leon Tixier and Dr. Carle Roederer have observed four examples of this form of dwarfism, which are briefly recorded, with a summary of the chief features of the condition, in *La Presse Médicale* of Feb. 1st. Three of their four patients were members of one family—indeed, of the same generation of that family; their mother showed traces of bony abnormalities similar to those exhibited in grosser form by her children. The most obvious of these abnormalities is inadequate stature, the patients falling short of the average height by 10 or 20 per cent. This is partly due to curvature of the long bones and of the spine, partly to retardation of the ossificatory process by the abnormal state of the diaphyseal cartilage. The first symptom noticed, however, is difficulty in learning to walk; this is accompanied by an antero-external curvature of the tibiæ. In the arms a similar deformity is present, though it is less pronounced. The femora and humeri are also curved outwards, and there is marked genu valgum. Scoliosis is a constant and striking feature; with it there is a lordotic curve in the lumbar region, and the usual secondary changes in the thorax and pelvic and pectoral girdles. In these as well as in other respects the bony changes closely resemble those of rickets; as in the commoner disorder, there are epiphyseal thickenings, and the frontal bones are prominent. Radiographic examination, however, reveals

several features which seem to hint at a different type of morbid process being responsible. There are evidences of attempts at repair, the concavities of some of the curves being reinforced by thickening of the bone. The medullary canal of the long bones is large, as in rickets; but its outline (as seen in the radiograph) is irregular, as in syphilitic osteitis. In the cases recorded by Dr. Tixier and Dr. Rœderer the Wassermann reaction was negative, and there was no reason to suspect a syphilitic basis. In one important respect the skiagraphic appearances recall those of osteomalacia; the shafts of the long bones cast a stippled shadow, apparently due to a disorderly commixture of non-calcified with normal areas. The muscles are generally weak and exhibit a diffuse dystrophy; this is too definite to be regarded as a result of the child's immobility, and must be looked upon as a primary feature of the disorder. The intellect is often feeble, and the evolution of the mental powers retarded; in one case there was obesity, in others the children were wasted. In one instance sexual development was delayed. Apart from the possibility of the hereditary factor alluded to above, nothing is clear as to the causation of this singular affection; neither has there been any appreciable benefit from any particular line of treatment. It is possible, of course, that other critics may find the separation of this condition from rickets an arbitrary and unjustifiable one; yet in its later development and in some other features its claim to individuality does appear reasonably well founded.

A FLANNELETTE BILL.

A BILL has been introduced into the House of Commons and read for the first time, entitled "A Bill to deal with Misdescription of Fabrics," the object of which is to prohibit the sale of flannelette or any other textile fabric described as being non-inflammable or safe unless it conforms to such standard of non-inflammability as may be prescribed by regulations to be made by the Secretary of State. It may be remembered that in 1910 a report was issued by a Home Office Departmental Committee upon the inquiry into the question of the danger arising from the sale of flannelette for articles of clothing, and legislation was recommended making it penal to describe as uninflammable material which will not stand certain prescribed tests. The Bill is based upon this finding, although the Departmental Committee expressed the opinion that the question of misrepresentation could be dealt with under the provisions of the Merchandise Marks Act, 1887. It has since been decided, however, that a separate Bill was necessary, as there were difficulties in the way of including a special matter such as that of the inflammability of fabrics in any existing Act. The question as to whether or not a fabric is safe or non-inflammable can, of course, only be decided by test, and this means the setting up of a standard, and here there will be some trouble in regard to getting a general endorsement from all concerned as to its efficiency or fairness. We ourselves made an attempt to lay down a standard method of testing which we considered would, if adopted, afford sufficient protection. It is required to know, in our opinion, what is safe and not what is non-inflammable, and that consideration led us to employ a test which may have passed inflammable materials, but which readily discriminated the reasonably safe from the obviously dangerous. The ordinary linen or calico night garments are, of course, inflammable, but their liability to catch fire and the spread of the flame is not of the alarming nature experienced with the common forms of flannelette. But there are superior flannelettes which are as reasonably safe as linen or calico. The Departmental Committee referred to were adverse to certain suggestions which had been made in favour of precipitate and drastic legislation, for they held that "legislation of the kind suggested is the less justifiable in view of the fact that matters may in course of time be expected to right themselves." Again, they reported that "great improvement has already been made in the manufacture of flannelette, and further improvements may be anticipated"; and finally, they expressed the opinion that "there is also the possibility that new and cheaper methods of diminishing the inflammability of the material may be discovered." It is, we think, unquestionably the case that the cheap and clearly unsafe flannelette has been responsible for bringing disaster to many helpless little ones, and the fact that such flimsy material can be sharply discriminated from the reasonably safe fabric should render the adoption of a protective test conducted under practical conditions feasible, workable, and fair. With a standard imposed, we think that good will come of the Bill, for it is obvious that the manufacturer who is not honestly able to stamp his goods as "safe" will eventually have to make room for those who can.

NON-MALIGNANT CANCER OF THE BREAST.

THAT cancer is a progressive disease leading to death, except when it has been completely extirpated by operation, is so generally true that the exceptions are overlooked. Many well-authenticated cases of spontaneous recovery from cancer are now on record, and the possibility of this occurring is forgotten by those who claim recovery from some medicinal treatment. Another and even less recognised exception to the rule that cancer is a fatal disease is the condition called "non-malignant cancer," an expression which at first may seen a contradiction in terms, but the meaning of which will be plain if it is remembered that it is the structure of a growth and not its destructive effects which determines whether it is to be classed as a cancer or not. Some years ago at the Pathological Society of London Dr. S. Bontor reported, under the title of "Non-malignant Cancer of the Breast," the case of a woman who died at the age of 77 years, and had a growth in the left breast for 23 years.[1] It never ulcerated or caused pain, but latterly there had been some inconvenience from a sense of constriction of the chest. There were several secondary deposits in the right breast and in the skin of the abdomen, but there were no enlarged glands or signs of involvement of distant organs. The cancerous nature of the growth was proved by both macroscopic and microscopic appearances. In the discussion which followed Sir Watson Cheyne referred to a case in which a similar condition had lasted for 14 years and then a sudden outburst took place. Mr. C. A. Ballance mentioned the case of a woman who at the age of 70 developed carcinoma in both breasts. The disease had no effect on her general health and she did not die until the age of 82. He pointed out that carcinoma supervening in the aged is of slow growth. In the *Australian Medical Journal* of Dec. 28th, 1912, Dr. M. Crivelli and Dr. A. J. Trinca have reported a case of carcinoma of the breast of 47 years' duration. The patient was a married woman who since the beginning of the disease has been under medical observation. At one time the growth was declared inoperable and she was told she had only a short time to live. She came under Dr. Crivelli's care 20 years ago. She stated that she first noticed a lump in the right breast 27 years before. It commenced in the region of the nipple as a hard nodule which grew very slowly for about 10 years and never became very prominent. During the next 35 years it remained more or

[1] THE LANCET, Dec. 8th, 1900, p. 1652.

less quiescent, a process of growth and scarring taking place. During this time she enjoyed fairly good health. Then without apparent reason rapid growth towards the subclavicular region commenced in January, 1910, and glandular infection was observed, first in the axilla and then in the neck and mediastinum, rapidly producing complete brachial paralysis and two months later dysphagia. Inability to swallow even small quantities followed and she died from inanition on June 9th, 1912, at the age of 93 years and 11 months. For 35 years the condition presented was a prominent central nodule in the breast with a smaller circle immediately surrounding it. The right arm was fixed at all the joints, the forearm and wrist being in a position of marked flexion and the skin shiny and atrophic. The arm was completely paralysed and anæsthetic except in the area supplied by the ulnar nerve, which was hyperæsthetic and hyperalgesic. Microscopic examination of portions of the growth removed after death showed that the older portions consisted of large tracts of degenerated poorly staining fibrous tissue with occasionally small groups of what appeared to be carcinomatous cells in lymph spaces. The more rapidly growing portions were more cellular. There never was any doubt as to the cancerous nature of the tumour, for although for many years there was no glandular involvement there was from the beginning dense adhesion to skin and underlying structures. The case shows well how a prognosis based on the general course of a disease may be falsified. It breaks the record of all published cases of mammary cancer of long duration. In addition to the cases mentioned above durations of 15, 17, 20, and 32 years have been recorded.

WOODHALL SPA WATERS.

THE waters of Woodhall Spa, in Lincolnshire, are unique in the fact of containing important quantities of bromine and iodine, chiefly in the form of bromide and iodide, with, it has been stated, some amount of bromate and iodate. A recent analysis of these waters has been made by Dr. J. C. Thresh, who records some interesting observations in regard to the methods adopted in analysis which presented some difficulties, and to the variations which occur in the amount of bromine and iodine in the water taken from different adits. Not only did the iodides and bromides vary, but the chlorides and sulphates also, and especially the latter. Some samples contained a mere trace of sulphates, others a large quantity, hence the composition of any particular sample would depend upon the proportion in which these adit waters were mixed. There is one constituent of most of these adit waters which has not yet been recorded, and which is the cause of all the difficulties which arise in making the analyses. This is nitrous acid, no doubt existing as sodium nitrite. It is a very variable constituent, sometimes present in infinitesimal quantity and at others present in abundance. In the Royal Hotel water neither free iodine nor any iodate was detected, and the iodine as iodide has varied from 2·0 to 2·4 mlgr. per litre. There is a trace of bromate, and the bromine as bromide has varied from 39·7 to 43·36 mlgr. per litre. In other words, there is apparently less bromine present than is stated on the label, and only about one-tenth of the iodine. Whatever the composition of the water may have been at some previous period it certainly, judging by Dr. Thresh's examination, differs greatly at the present time from the composition as stated on the label. The Spa Company's water does not pretend to contain such considerable quantities of iodine, yet actually it is richer in both iodine and bromine than the hotel spa water now being supplied in bottles. The mean of two concordant analyses of the Spa Company's water gave iodine as iodide and iodate 6·0 stated on label 5·87 mlgr. per litre; bromine as bromide and bromate 76·6, stated on label 33·75 mlgr. per litre. Samples from the various adits in this well examined a short time ago gave iodine varying from 3·3 to 6·3 mlgr. per litre and bromine from 46·5 to 65·8 mlgr. per litre. One of the adits yielded a water containing a large quantity of sulphates, in this respect resembling the water from the Royal Hotel well, but the others contained mere traces of these salts. As Dr. Thresh points out, it may be of importance to the profession to know which of the wells yields the more highly charged water; and the desirability of amending the statements of the labels on the bottles is obvious. The results of the analysis convey no imputation whatever—they simply prove the extreme difficulty of defining natural mineral waters by permanent formulæ.

GONOCOCCAL SEPTICÆMIA.

IT is only within recent years that it has been recognised that the gonococcus is capable of causing a general infection of the blood, a septicæmia, comparable to the results of the attacks of streptococci and staphylococci. The affection appears to be rare, if we may judge from the recorded cases, though it is not improbable that it occurs more frequently than diagnosis would suggest, and that many of the cases of septicæmia of obscure origin are really gonococcal. In the present number of THE LANCET Dr. Claude B. Tudehope records a case of this nature (under the care of Dr. J. Aldington Gibb), in which there was a blood infection as shown by the symptoms, and with it was associated a gonococcal urethritis. That the pyæmic or septicæmic condition was due to the gonococcus was probable from the presence of a gonococcal urethritis, but the causal connexion was shown by the effect of the treatment with a gonococcal vaccine. It would, perhaps, be well that other obscure cases, septicæmic in character, should be specially examined for the gonococcus in the usual sites such as the urethra and the vagina, and also in the blood. The extreme frequency of gonorrhœa makes it not improbable that many cases of blood infection arising from the inflamed mucous membrane are not diagnosed as gonococcal in origin.

THE ANNUAL CONGRESS OF THE ROYAL INSTITUTE OF PUBLIC HEALTH.

THE Twenty-first Annual Congress of the Royal Institute of Public Health will be held this year in Paris, from May 14th to 18th inclusive, upon the invitation of the municipal council. A French organisation committee has been formed representative of the great departments of State, under the presidency of Professor Landouzy, Dean of the Medical Faculty, and the honorary presidency of M. Steeg, Minister of the Interior. The Minister of Foreign Affairs, in extending his patronage to the congress, has directed the special attention of all other interested departments, in particular the Ministries of War and Marine, to the "great importance of participation in the work." The meeting will be held in five sections, viz.—(1) State Medicine; (2) Bacteriology and Comparative Pathology; (3) Eugenics and Child Study; (4) Naval, Military, and Colonial; and (5) Industrial Hygiene. Facilities will also be afforded for visiting the various public health and educational institutions in Paris. Invitations to appoint delegates have been sent to all the municipalities in this country, county councils, local authorities, universities, learned societies, and other public bodies, and these invitations have met with cordial response. The meeting last year in Berlin was most successful, and it is anticipated that the further opportunities which will be given this year to members of the congress for becoming practically

acquainted with continental institutions will ensure a like result. All communications on the subject should be made to the honorary secretary-general of the congress, Royal Institute of Public Health, Russell-square, London, W.C.

OCCLUSION OF THE INFERIOR VENA CAVA AS A RESULT OF INTERNAL TRAUMA.

AT the Pathological Section of the Royal Society of Medicine on Tuesday last Mr. S. G. Shattock recounted the extraordinary case of the late Dr. W. Rivers Pollock. Dr. Pollock, the late obstetric physician to the Westminster Hospital, as was well known to his friends, lived for 25 years with occlusion of the inferior cava, and bequeathed to the Royal College of Surgeons of England for dissection the parts involved. In 1884 Pollock, when about 24 years of age, ran successfully for Cambridge against Oxford in the 120 yards hurdle race, the time being given as 16 seconds.[1] He held his breath the whole time of the race, and immediately after the struggle lay down on the grass. Œdema of the legs supervened at once. He kept his bed for six months, during which time progressive dilatation of the superficial veins occurred. During the rest of life the distended veins were supported by the systematic use of elastic pants. Death took place from tonsillitis and septicæmia 25 years later. The dissection showed a complete obliteration of the inferior cava below the hepatic veins. The most probable view of the lesion was, in Mr. Shattock's opinion, that under the abnormal distension to which the vein would be subject some rupture of the inner coats occurred; that this was followed by an intramural extravasation whilst the exertion was still in progress; and that, as a result, when the pressure was relieved the calibre of the cava would be reduced and clotting extend into the lumen so as to complete the occlusion. It was characteristic of Pollock that he should desire that science should have the benefit of any lessons that could be drawn from the physical tragedy of his life; and Mr. Shattock's account of the pathology of his case will bring back to the memory of Pollock's many friends his splendid courage under his terrible ordeal.

RAPID MIGRATION OF A FOREIGN BODY IN THE HAND.

IT is well known that small metallic foreign bodies lodged in the tissues may migrate from one place to another. Well-authenticated cases have been recorded of needles which had been swallowed being removed, after longer or shorter periods, from various parts of the body, including the extremities. As a rule fragments of needles which have passed through the skin do not move far, though muscular action or pressure from without may cause some migration. The following case, recorded in the *Boston Medical and Surgical Journal* recently, by Professor A. Lothrop, of the Harvard Medical School, is exceptional in the rapidity and extent of the migration. While dusting, a young woman wounded her hand with a needle which broke. She removed a fragment and went next day (Dec. 2nd, 1911) to the Boston City Hospital. There was a puncture on the palmar aspect of the thumb at its base. A skiagram showed a fragment of needle about a third of an inch long embedded in the tissues anterior to the semilunar bone. There was no clinical evidence of this location, which was considerably internal to the point of entrance. On Dec. 8th, prior to operation, a second skiagram was taken. This showed a fragment of needle, of the same size and shape as seen about a week previously, anterior to the distal end of the first phalanx of the little finger. There were no symptoms or signs indicating this new position of the foreign body or the fact that it was no longer in front of the semilunar bone. A median longitudinal incision about half an inch in length was made over the middle phalanx and carried through the fascia to the tendon sheath, but the fragment could not be found. The sheath was opened and the fragment was easily found lying loosely on the tendon. Uninterrupted recovery ensued. The wound of entrance showed that the fragment of needle, about one-third of an inch long, entered the radial side of the palmar aspect of the base of the thumb. Forty-eight hours later it was at about the same horizontal level on the ulnar side, and a week later it was in front of the first phalanx of the little finger. Dr. Lothrop thinks that its course must have been through tendon sheaths. The case shows the importance of taking a skiagram shortly before attempting the removal of a foreign body, which should be located by plates taken in two planes. Occasionally surgeons have much trouble in finding buried needles, and frequently they have, to their chagrin, been compelled to abandon the search.

[1] THE LANCET, Oct. 16th, 1909, p. 1182.

A SPECIAL meeting of Fellows of the Royal Society of Medicine will be held at the society's house, 1, Wimpole-street, W., on Monday, March 10th, at 5 P.M., when a discussion on Alimentary Toxæmia: Its Sources, Consequences, and Treatment, will be opened. The following opening addresses will be delivered on that day:—Dr. Hale White, General Survey; Dr. F. W. Andrewes, the Bacteriology of the Alimentary Canal; Dr. Vaughan Harley, the Toxins of the Alimentary Canal; Dr. Robert Saundby, Consequences and Treatment from a Medical Point of View; Mr. Arbuthnot Lane, Consequences and Treatment from a Surgical Point of View; Mr. J. F. Colyer, Consequences and Treatment from a Dental Point of View. The discussion will be reopened by Mr. J. B. Lawford on Monday, April 14th, at 5 P.M., and will be continued on successive Mondays for as long as may be necessary.

ON the suggestion of the High Commissioner for Cyprus the Secretary of State for the Colonies has arranged that a visit shall be paid to the island during March, by Sir Ronald Ross, late professor of tropical medicine in the University of Liverpool. The object of the visit is to investigate the causes of the prevalence of malarial fever in the island, and to advise in regard to the best means of combating the disease.

AT a meeting of the Hunterian Society, held at St. Bartholomew's Hospital on Feb. 12th, Mr. A. H. Tubby, the President, being in the chair, the annual oration was delivered by Dr. Edward W. Goodall on Serum Sickness.

THE death has occurred of Sir Thomas Chavasse, F.R.C.S. Eng., for over 30 years surgeon to the Birmingham General Hospital.

WE also have to record the death of Dr. A. B. Duffin, consulting physician to King's College Hospital, London.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill are about to publish a new book entitled "The Difficulties and Emergencies of Obstetric Practice," by Dr. Comyns Berkeley and Mr. Victor Bonney, obstetric and gynæcological surgeons to the Middlesex Hospital. The illustrations are all original and very numerous. The same publishers have just ready the sixth edition of "A Short Practice of Midwifery," by Dr. Henry Jellett, master of the Rotunda Hospital, Dublin. The new edition is to be issued with a larger page, and has been revised throughout, and contains many new illustrations.

ANNUAL REPORT (PART I.) FOR 1911-12 OF THE LOCAL GOVERNMENT BOARD.

THE first part of the forty-first annual report of the Local Government Board has recently been issued. Since 1907 these important Blue-books (which had previously appeared in a single bulky volume) have been issued in sections, greatly to the convenience of readers seeking information on particular groups of subjects.

Poor-law Administration and the Recommendations of the Royal Commission on the Poor-laws.

Part I., which is now before us, discusses the various details of Poor-law administration, and even a bare summary of these matters, though interesting, would be outside our scope. There are, however, two subjects which Mr. John Burns has treated with exceptional fulness, one of which relates to the altered conditions of medical relief, the other to the boarding-out of pauper children, both of which have a medical bearing. Moreover, the publication of the momentous reports of the Royal Commission on the Poor-law has invested with fresh interest whatever concerns the relief of the necessitous poor.

In a series of articles in THE LANCET of 1909[1] we discussed in detail the contents of the Majority and Minority Reports recently presented to Parliament. From a careful examination of the reports issued by the Board since that date, we gather that many of the weighty representations of the Commissioners have been treated by the department with the consideration to which they were obviously entitled. It was hardly to be expected that the President would promptly adopt those recommendations of the Minority Report which involve the unconditional transfer of the treatment of pauper sickness from the Poor-law to the public health authorities, although we believe that some such course will eventually be found to be the wisest, the most humane, and probably the most economical. The help required in sickness by the poorer members of the community should be entirely dissociated from the relief of able-bodied destitution, and the former should not entail, directly or indirectly, the disability or disgrace ordinarily attaching to pauperism.[2] Already Parliament has indicated its partial acceptance of this principle by removing the disqualification for old age pensions which previously attached to receipt of relief from the rates. Mr. John Burns, in recording with satisfaction the substantial reduction of English pauperism in 1911 as compared with the previous year, attributes this state of affairs to the circumstance that from Jan. 1st of that year persons were no longer disqualified from becoming old age pensioners by reason of their having accepted Poor-law relief at some period since the beginning of 1908. He further states that, owing to the removal of this disqualification, a large number of persons had ceased to be chargeable to the guardians as paupers.

Altered Conditions of Medical Relief.

Although the total number of paupers in receipt of medical relief alone is not separately given, we learn that on the first day of last year 8061 men, 10,097 women, and 5250 children were receiving outdoor medical relief, as distinguished from other forms of so-called "public assistance." Of the indoor paupers on the same day 35 per cent. were under medical care in hospitals, infirm wards, or infirmaries. It is well known that the time-honoured "medical relief books" in use for Poor-law purposes are unsatisfactory, both for statistical purposes and as a means of recording particulars concerning the incidence and amount of pauper sickness. A new order was issued in 1911 establishing throughout England and Wales a uniform code of regulations governing relief. Among improvements of procedure we note the introduction of the "case paper system," the object of which is to secure to the guardians a complete knowledge of the circumstances of every applicant for relief. In the course of 1911 the Board issued special orders to certain of the metropolitan unions providing for the discontinuance of the medical relief book, and the substitution of "case papers" containing specified particulars as to the history, diet, and treatment of each case, the entries to be made by the responsible medical officer. Of this system, wherever it has been adopted, the reports are favourable. Thus, MR. Gerald Hervey, H.M. Inspector, tells us, with respect to the Lowestoft Union, that "the case-paper system has worked extremely well, and from a financial standpoint has been a complete success." If the substitution referred to could be universally extended a valuable record of pauper sickness would shortly be available, which would materially advance the progress of preventive medicine.

Metropolitan Asylums Board.

The work of this institution is highly appreciated by Mr. John Burns, who claims its successful evolution as "an illustration of the applicability of the Poor-law to the demands of an increasingly complex civilisation, and of the advantages these attained in system and in economy." In criticism of this claim it should be remembered that the *personnel* of the Metropolitan Asylums Board is altogether exceptional. The possibility of so far improving the constitution of the average board of guardians as to be fairly comparable to that of the body in question would, we think, hardly be contended for by anyone. The report contains particulars of the accommodation provided for the treatment of sick children and of those suffering from ophthalmia, ringworm, and certain other diseases, as well as of the provision for open-air treatment of tuberculosis at Margate, Ruthington, and Carshalton.

Pauper Children: The Boarding-out System.

At the beginning of 1912 the aggregate of children under the care of guardians is stated to have exceeded 250,000. Of children supported in institutions to which paupers are admissible the number was 70,698, more than two-thirds of whom were fortunately housed in institutions other than workhouses or infirmaries. More than 10,000 outdoor pauper children were "boarded out," for the most part within the unions to which they are chargeable. In the present volume an interesting report appears from Miss Ina Stansfield, H.M. Chief Lady Inspector, from which it appears that by the end of the same year 540 boards of guardians had arranged for the supervision of boarded-out children, and that 98 salaried female visitors had been appointed to act under the instructions of the visiting committees which, to the extent of one-third, are composed of women. The difficulties of boarding out children within the districts to which they belong are once more forcibly illustrated by the experience of the year in question. The parents of such children are often undesirable, for they not only interfere with the children, but annoy respectable foster parents. It is remarkable how many parents or undesirable relatives manifest a sudden affection for their children immediately on their attaining a money earning age. They either entice them away from the custody of the guardians, or else, by their evil influence, counteract all the training the children may have received. The inspector recounts numerous instances of grave laxity on the part of those responsible for control of the conditions under which children are placed. These are often objectionable, and the frequent overcrowding of sleeping rooms is injurious both to health and to morals. Many of the conditions reported especially in respect of personal uncleanliness and the unwholesome sleeping arrangements of boarded-out children would have involved a public scandal had they occurred in a Poor-law institution.

Several instances are recorded where children excluded from school on medical certificate remain unprovided with the special treatment necessary for a cure. Among these are cases of mental defect, tuberculosis, anæmia, and epilepsy. The inspector judiciously remarks that unless children suffering in this way are promptly dealt with they are likely to be a long-standing charge on the rates, and also sometimes to act as centres of infection. It is not to the advantage of such children that they should be boarded out.

[1] Vide THE LANCET, vol. i., 1909, pp. 553, 663, 706, 782, 859, 935, 942, 1065, 1363.

[2] Vide THE LANCET, March 27th, 1909, p. 936.

WORTHING HOSPITAL.—An anonymous gift of £1000 has just been made to the Worthing Hospital, and together with the legacy left by Alderman Cortis of £2000 the financial liability—except for upkeep and maintenance—in connexion with the new out-patients' department has been liquidated. The department is Worthing's memorial to King Edward.

NATIONAL INSURANCE IN ROUMANIA.

(FROM A CORRESPONDENT.)

ROUMANIA has now joined the ranks of European countries which possess a system of compulsory insurance for the benefit of the working classes. The new Roumanian law is intended to regulate the position of workmen and artisans, and also to provide a system of small credit, while the second part of the measure is devoted to the introduction of a triple form of industrial insurance largely modelled on the German system. Three distinct forms of compulsory insurance are to be created—insurance against sickness, insurance against accidents, and provision for old age. The State is to bear the cost of administration, but will only contribute towards the cost of old age and disablement pensions.

Scheme of Insurance Against Sickness and Accidents.

Insurance against sickness will be compulsory for all workmen belonging to the various classes of occupation to be created by this law, and it is estimated that about 141,000 persons, including foremen, will fall within its scope and will become members of the one uniform sick club for the whole kingdom. The whole of the contributions will be defrayed by the insured, the employers being compelled to deduct the amount from each worker's wages weekly and stick a stamp of the corresponding value on his insurance card. The contributions vary according to the wages of the insured person, there being five different wage classes. The benefits promised are as follows:—Free medical attendance and free medicine in the case of sickness; from the third day of illness sick pay for a period not exceeding 16 weeks. In the case of heads of families the sick pay will amount to half the average wage of his class, or one-quarter of this amount should he undergo treatment in a hospital. At the death of an insured person his relatives will be entitled to a burial grant. In addition to the above direct benefits the wives and children of the insured are also entitled to free medical attendance, while maternity benefit, in the shape of free medical attendance and free medicine, will be given to the wives of insured persons. Disputes arising between the insured and the sick club are to be settled by a court of arbitration to be appointed in every district and consisting of three arbitrators—viz., one employer, one workman, and the chairman of the local law court.

The scheme of insurance against accidents is an almost exact replica of the German law. The owners of enterprises employing steam, gas, or electricity as a motive power, builders, owners of quarries, railways, mines, saw-mills, &c., form collectively an assurance corporation, including all their workmen, and the entire cost of this branch of insurance is defrayed by the employers, who contribute according to the number of employees, wages paid, and degree of danger of each occupation. In the event of an accident occurring to a workman in their employ, he is entitled to free medical attendance, and should he be entirely incapacitated for work a pension amounting to two-thirds of his earnings will be paid to him for life out of the common fund of the employers' association. Should he be quite helpless and require constant care, the pension may be so increased as to equal his full wages before the accident, while in the case of partial disability the amount paid out is to be correspondingly reduced. Should the accident lead to death, the relatives of the deceased worker are entitled to a burial grant of £4. The widow will receive a pension amounting to one-fifth of her deceased husband's average wage; another one-fifth is to be added for every child under 16 years of age for whom the widow has to provide.

Medical Treatment.

As regards the medical treatment of the insured, it must be borne in mind that in Roumania the entire cost of the upkeep of the hospitals, including the remuneration of their medical staff, is defrayed by the State, and that every person, regardless of religion or nationality, is entitled to free medical treatment in the hospitals, many of which were founded during the past century by wealthy boyars. It is in these hospitals that the insured will receive treatment.

In Bucharest a special organisation has been created for the medical treatment of the insured. The city has been divided into five districts, in each of which there are four doctors who have a purely consulting practice, the insured coming to them during certain fixed hours (two hours daily); in addition, three doctors are available in each district for visiting the insured in their homes, while the services of ten specialists, with fixed consultation hours, have also been secured. It is interesting to note that the list contains the names of no less than six women practitioners, entrusted with the treatment of female persons, out of a total of 35 "panel" doctors. These medical practitioners receive a monthly remuneration of from £8 to £10, regardless of the number of patients treated by each.

Contributions and Benefits.

The weekly contributions paid by the workers for insurance against sickness vary with the wage class to which the insured belongs, and amount to ½*d.*, 2*d.*, 3*d.*, 4½*d.*, and 6*d.*, according to the wage class. The sick pay amounts to 50 per cent. of the worker's wages in the case of married men, and to 35 per cent. for bachelors. After confinement a female insured person receives sick pay during a period of six weeks. In the event of the death of an insured person his relatives are entitled to a burial grant ranging from £2 8*s.* to £4, according to the wage class of the deceased. Towards old age and invalidity insurance, worker, employer, and State each contribute weekly the sum of 1½*d.*

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,764 persons, 8672 births and 5886 deaths were registered during the week ended Saturday, Feb. 15th. The annual rate of mortality in these towns, which had been 17·0, 17·3, and 17·2 per 1000 in the three preceding weeks, was again 17·2 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 16·6 per 1000, or 0·5 above that recorded in London during the same period. The death-rates last week in the several towns ranged from 7·0 in Enfield, 7·4 in Southend-on-Sea, 7·9 in Bootle, 8·0 in Wallasey, and 9·0 in Wimbledon to 24·9 in West Bromwich, 25·0 in Swindon, 28·2 in Wigan, 29·4 in St. Helens, and 29·9 in Stockton-on-Tees.

The 5886 deaths from all causes in the 96 towns were 10 fewer than the number in the previous week, and included 458 which were referred to the principal epidemic diseases, against 430 and 445 in the two preceding weeks. Of these 458 deaths, 217 resulted from measles, 79 from infantile diarrhœal diseases, 70 from whooping-cough, 53 from diphtheria, 23 from scarlet fever, and 16 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·3 per 1000, and coincided with that recorded in each of the two preceding weeks. The deaths attributed to measles, which had declined from 277 to 200 in the four preceding weeks, rose to 217 last week, and caused the highest annual death-rates of 3·0 in Stockton-on-Tees, 4·0 in Swindon and in Barrow-in-Furness, 5·2 in St. Helens, 6·3 in Wigan, and 7·5 in West Bromwich. The deaths of infants under 2 years of age referred to diarrhœa and enteritis, which had been 67, 65, and 75 in the three preceding weeks, slightly rose to 79 last week, and included 18 in London, 9 in Manchester, 5 in Birmingham, 4 in Portsmouth, 4 in Stoke-on-Trent, 4 in Liverpool, and 3 in Salford. The fatal cases of whooping-cough, which had been 81, 66, and 78, in the three preceding weeks, declined to 70 last week; 25 deaths occurred in London, 5 in Warrington, 4 in Liverpool, and 3 in Nottingham. The deaths attributed to diphtheria, which had been 47, 62, and 45 in the three preceding weeks, rose to 53 last week; 7 deaths were recorded in London, 4 in Birmingham, 4 in Bradford, 4 in Sheffield, 3 in Portsmouth, and 3 in Birkenhead. The deaths referred to scarlet fever, which had been 19, 17, and 29 in the three preceding weeks, fell to 23 last week, and included 3 in London, 3 in Manchester, and 2 in Brighton. The 16 fatal cases of enteric fever last week were equal to the average in the preceding six weeks; 3 deaths were registered in Stoke-on-Trent, 2 in Bolton, and 2 in Merthyr Tydfil.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospitals, which had steadily declined from 2112 to 1736 in the seven preceding weeks, had further fallen to 1701 on Saturday last; 196 new cases were admitted during the week, against 215, 209, and 209 in the three preceding weeks. These hospitals also contained on Saturday last 931 cases of diphtheria, 852 of measles, 320 of whooping-cough, and 40 of enteric fever, but not one of small-pox. The 1570 deaths from all causes in London were 71 in excess of the number in the previous week, and were equal to an annual death-rate of 18·1 per 1000. The deaths referred to diseases of the respiratory organs, which had been 393, 447, and 373 in the three preceding weeks, rose to 443 last week, and were 3 in excess of the number recorded in the corresponding week of last year.

Of the 5886 deaths from all causes in the 96 towns last week, 214 resulted from various forms of violence and 511 were the subject of coroners' inquests. The causes of 42, or 0·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and its 14 suburban districts, in Leeds, Bristol, Bradford, Hull, Newcastle-on-Tyne, Nottingham, and in 56 other smaller towns. The 42 uncertified causes of death last week included 13 in Birmingham, 5 in Liverpool, 3 in Coventry, and 2 each in Southport, Blackpool, Sheffield, Sunderland, and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,260,200 persons at the middle of this year, 1177 births and 883 deaths were registered during the week ended Saturday, Feb. 15th. The annual rate of mortality in these towns, which had steadily increased from 17·3 to 20·8 in the five preceding weeks, declined to 20·4 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these towns averaged 19·3, against a corresponding rate of 16·6 per 1000 in the 96 large English towns. Among the several Scotch towns the death-rates last week ranged from 13·5 in Kilmarnock, 14·6 in Paisley, and 17·6 in Hamilton, to 25·2 in Dundee, 26·1 in Kirkcaldy, and 26·7 in Motherwell.

The 883 deaths from all causes were 17 fewer than the number in the previous week, and included 65 which were referred to the principal epidemic diseases, against 74 and 88 in the two preceding weeks. Of these 65 deaths, 39 resulted from whooping-cough, 14 from infantile diarrhœal diseases, 8 from diphtheria, 3 from measles, and 1 from scarlet fever, but not one from enteric fever or from small-pox. These 65 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·5 per 1000, against 1·3 in the 96 large English towns. The deaths attributed to whooping-cough, which had been 40, 55, and 52 in the three preceding weeks, declined to 39 last week, and included 20 in Glasgow, 4 in Motherwell, 4 in Falkirk, and 3 in Edinburgh. The deaths of infants under 2 years of age referred to diarrhœa and enteritis, which had been 20, 5, and 10 in the three preceding weeks, further rose to 14 last week; 6 deaths were recorded in Glasgow, 3 in Dundee, and 2 in Greenock. The fatal cases of diphtheria, which had been 13, 6, and 12 in the three preceding weeks, declined to 8 last week, of which number 5 occurred in Glasgow. Of the 3 deaths attributed to measles, 2 were registered in Motherwell and 1 in Edinburgh. The fatal case of scarlet fever was recorded in Aberdeen.

The deaths referred to diseases of the respiratory system in the 16 Scotch towns, which had been 188, 221, and 214 in the three preceding weeks, fell to 192 last week; 31 deaths were attributed to different forms of violence, against 31 and 34 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland with an aggregate population estimated at 1,199,180 persons at the middle of this year, 635 births and 490 deaths were registered during the week ended Saturday, Feb. 15th. The annual rate of mortality in these towns, which had been 21·3, 20·4, and 20·9 per 1000 in the three preceding weeks, rose to 21·3 per 1000 in the week under notice. During the first seven weeks of the current quarter the mean annual death-rate in these Irish towns averaged 21·3 per 1000; in the 96 large English towns the corresponding death-rate did not exceed 16·6, while in the 16 Scotch towns it was equal to 19·3 per 1000. The annual death-rate recorded in the several towns last week was equal to 21·7 in Dublin (against 18·1 in London and 20·7 in Glasgow), 19·9 in Belfast, 29·2 in Cork, 19·1 in Londonderry, 17·6 in Limerick, and 26·6 in Waterford, while in the remaining 21 smaller towns the mean rate was equal to 20·7 per 1000.

The 490 deaths from all causes in the 27 Irish towns were 9 in excess of the number in the previous week, and included 35 which were referred to the principal epidemic diseases, against 30 and 41 in the two preceding weeks. Of these 35 deaths, 10 resulted from measles, 9 from infantile diarrhœal diseases, 6 from scarlet fever, 6 from whooping-cough, 3 from diphtheria, and 1 from enteric fever, but not one from small-pox. These 35 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·6 per 1000; in the 96 large English towns the death-rate from these diseases did not exceed 1·3, while in the 16 Scotch towns it was equal to 1·5 per 1000. The deaths attributed to measles, which had been 17, 21, and 18 in the three preceding weeks, declined to 10 last week, and included 4 in Belfast and 2 in Newry. The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 7, 5, and 9 in the three preceding weeks, were again 9 last week, and comprised 4 in Dublin, 4 in Belfast, and 1 in Londonderry. The 6 fatal cases of scarlet fever were 3 in excess of the average number in the six preceding weeks, and included 4 which were registered in Belfast. The 6 deaths attributed to whooping-cough were slightly in excess of recent weekly numbers, and comprised 3 in Waterford, 2 in Dublin, and 1 in Belfast. The 3 deaths referred to diphtheria occurred in Dublin, Belfast, and Lurgan respectively. The fatal case of enteric fever was registered in Belfast.

The deaths referred to diseases of the respiratory system in the 27 Irish towns, which had declined from 135 to 104 in the three preceding weeks, rose to 115 in the week under notice. Of the 490 deaths from all causes, 147, or 30 per cent., occurred in public institutions, and 6 resulted from different forms of violence. The causes of 14, or 2·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·7 per cent.

VITAL STATISTICS OF LONDON DURING JANUARY, 1913.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 5·3 per 1000 of the population, estimated at 4,518,191 persons in the middle of the year; in the three preceding months the rates were 6·8, 6·4, and 5·5 per 1000 respectively. The lowest rates last month were recorded in Paddington, Kensington, Chelsea, City of Westminster, Stoke Newington, and Holborn; and the highest rates in the City of London, Bermondsey, Deptford, Greenwich, Lewisham, and Woolwich. Scarlet fever continued last month to show a declining prevalence; among the several metropolitan boroughs this disease was proportionally most prevalent in Stepney, Bermondsey, Battersea, Greenwich, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 1717 scarlet fever patients at the end of last month, against 2242, 2250, and 2088 at the end of the three preceding months; the weekly admissions averaged 196 last month, against 303, 282, and 226 in the three preceding months. Diphtheria was rather more prevalent than it had been in the previous month; the greatest proportional prevalence of this disease was recorded in St. Pancras, the City of London, Poplar, Bermondsey, Greenwich, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 897, 917, and 959 at the end of the three preceding months, had declined again to 925 at the end of last month; the weekly admissions averaged 122, against 110, 124, and 120 in the three preceding months. The prevalence

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JANUARY, 1913.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,518,191	—	1077	709	—	84	—	28	375	8	6	2287	5·3	—	305	24	42	105	19	118	613	1·4	7319	17·6
West Districts.																									
Paddington	142,210	—	18	18	—	2	—	—	4	—	—	42	3·1	—	8	1	2	11	—	3	25	1·8	244	19·1
Kensington	171,284	—	35	10	—	1	—	1	12	—	—	59	3·6	—	15	1	2	5	—	5	28	1·7	310	20·4
Hammersmith	123,745	—	24	13	—	1	—	—	7	—	—	45	3·8	—	8	1	1	12	—	7	29	2·4	187	16·5
Fulham	157,117	—	41	14	—	3	—	1	13	2	—	74	4·9	—	10	1	—	3	—	4	18	1·2	219	15·2
Chelsea	64,598	—	9	4	—	1	—	3	3	—	—	20	3·2	—	3	1	—	2	—	1	7	1·1	102	17·1
City of Westminster	154,810	—	24	21	—	2	—	—	7	—	—	54	3·6	—	3	—	1	1	—	2	7	0·5	211	15·9
North Districts.																									
St. Marylebone	114,532	—	21	16	—	3	—	—	11	1	—	52	4·7	—	5	—	—	2	1	—	8	0·7	194	18·9
Hampstead	86,346	—	21	14	—	4	—	—	2	—	—	41	5·0	—	6	—	1	—	—	—	7	0·8	106	14·4
St. Pancras	214,330	—	48	42	—	7	—	1	14	—	—	112	5·4	—	6	—	5	2	2	3	18	0·9	368	18·7
Islington	325,585	—	71	43	—	9	—	2	15	—	2	142	4·5	—	14	3	3	4	3	11	38	1·2	529	17·6
Stoke Newington	50,518	—	8	3	—	—	—	—	1	—	—	12	2·5	—	3	1	—	—	—	—	4	0·8	75	16·2
Hackney	223,365	—	34	29	—	5	—	1	22	2	—	93	4·3	—	16	3	—	2	—	3	24	1·1	316	15·4
Central Districts.																									
Holborn	46,949	—	6	4	—	1	—	—	4	—	—	15	3·3	—	3	—	—	1	—	—	4	0·9	84	20·1
Finsbury	84,679	—	24	16	—	—	—	—	7	—	—	47	5·8	—	17	1	2	2	—	2	24	3·0	177	22·6
City of London	17,916	—	9	7	—	2	—	—	1	—	—	19	11·1	—	—	—	—	—	1	—	1	0·6	31	19·8
East Districts.																									
Shoreditch	109,654	—	13	8	—	5	—	—	15	3	—	44	4·2	—	26	1	—	3	1	8	39	3·7	261	26·0
Bethnal Green	127,824	—	17	16	—	1	—	1	24	—	1	60	4·9	—	21	—	1	2	1	10	35	2·9	256	21·1
Stepney	275,300	—	80	43	—	4	—	4	33	—	1	165	6·3	—	44	1	2	2	1	11	61	2·3	454	18·0
Poplar	160,913	—	40	37	—	4	—	2	15	—	1	99	6·4	—	20	2	3	1	—	3	29	1·9	245	16·4
South Districts.																									
Southwark	188,487	—	41	30	—	3	—	2	29	—	—	105	5·8	—	6	1	1	2	1	5	16	0·9	336	19·3
Bermondsey	124,739	—	56	28	—	5	—	2	20	—	—	111	9·3	—	1	—	2	2	—	5	10	0·8	237	20·3
Lambeth	297,139	—	73	28	—	5	—	—	15	—	1	120	4·2	—	8	1	3	3	2	9	26	0·9	486	17·5
Battersea	167,464	—	62	14	—	1	—	1	15	—	—	93	5·8	—	18	—	1	5	1	2	27	1·7	284	19·0
Wandsworth	330,395	—	77	45	—	6	—	2	11	—	—	141	4·5	—	26	1	1	2	2	6	38	1·2	425	14·1
Camberwell	261,805	—	57	28	—	2	—	1	26	—	—	114	4·5	—	11	2	—	13	—	12	38	1·5	443	18·3
Deptford	109,280	—	28	18	—	1	—	—	25	—	—	72	6·9	—	—	—	3	9	1	1	14	1·3	207	20·8
Greenwich	96,015	—	32	44	—	2	—	—	13	—	—	91	9·9	—	5	—	4	9	—	1	19	2·1	162	18·0
Lewisham...	168,822	—	50	59	—	3	—	—	4	—	—	116	7·2	—	2	2	3	5	2	1	15	0·9	204	13·1
Woolwich...	122,382	—	58	59	—	1	—	4	7	—	—	129	11·0	—	—	—	1	—	—	3	4	0·3	168	15·3
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

*Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

of enteric fever showed a slight increase over that recorded in the preceding month; among the several boroughs this disease was proportionally most prevalent in Hampstead, St. Pancras, Islington, the City of London, Shoreditch, and Bermondsey. There were 37 enteric fever patients under treatment at the end of last month, against 54, 42, and 37 at the end of the three preceding months; the weekly admissions averaged 7, against 7, 5, and 7 in the three preceding months. Erysipelas was proportionally most prevalent in Shoreditch, Bethnal Green, Stepney, Southwark, Bermondsey, Deptford, and Greenwich. The 28 cases of puerperal fever notified during the month included 4 in Stepney, 4 in Woolwich, 3 in Chelsea, and 2 each in Islington, Poplar, Southwark, Bermondsey, and Wandsworth. The 8 cases of cerebro-spinal meningitis included 3 in Shoreditch, 2 in Fulham, and 2 in Hackney; of the 6 cases of poliomyelitis 2 belonged to Islington.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates for all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the five weeks ending Feb. 1st the deaths of 7319 London residents were registered, equal to an annual rate of 17·8 per 1000; in the two preceding months 15·5 and 12·5 per 1000 respectively. The death-rates last month ranged from 13·1 in Lewisham, 14·1 in Wandsworth, 14·4 in Hampstead, 15·2 in Fulham, 15·3 in Woolwich, and 15·4 in Hackney, to 20·1 in Holborn, 20·3 in Bermondsey, 20·4 in Kensington, 21·1 in Bethnal Green, 22·6 in Finsbury, and 26·0 in Shoreditch. The 7319 deaths from all causes included 613 which were referred to the principal infectious diseases; of these, 305 resulted from measles, 24 from scarlet fever, 42 from diphtheria, 105 from whooping-cough, 19 from enteric fever, and 118 from diarrhœa and enteritis among children under two years of age. The lowest death-rates from these diseases was recorded in the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, the City of London, Bermondsey, and Woolwich; and the highest rates in Hammersmith, Finsbury, Shoreditch, Bethnal Green, Stepney, and Greenwich. The 305 deaths from measles were 104 in excess of the corrected average number for the corresponding period of the five preceding years; this disease was proportionally most fatal in Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, and Battersea. The 24 fatal cases of scarlet fever were 14 fewer than the corrected average number, and included 3 in Hackney, 3 in Islington, 2 in Poplar, 2 in Camberwell, and 2 in Lewisham. The 42 deaths from diphtheria were 37 below the corrected average number; of these 42 deaths 5 belonged to St. Pancras, 4 to Greenwich, 3 to Islington, 3 to Poplar, 3 to Lambeth, 3 to Deptford, and 3 to Lewisham. The 105 fatal cases of whooping-cough showed a decline of 26 from the corrected average number; this disease was proportionally most fatal in Paddington, Hammersmith, Deptford, and Greenwich. The 19 deaths from enteric fever were slightly in excess of the corrected average number, and included 3 in Islington, 2 in St. Pancras, 2 in Lambeth, 2 in Wandsworth, and 2 in Lewisham. The mortality from diarrhœa and enteritis among children under two years of age was proportionally greatest in Hammersmith, Shoreditch, Bethnal Green, Islington, Stepney, Bermondsey, and Camberwell. In conclusion, it may be stated that the aggregate mortality in London during January from the principal infectious diseases, excluding diarrhœa, was 4·9 per cent. above the average.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel David V. O'Connell is placed on retired pay (dated Feb. 13th, 1913).

Major Charles W. H. Whitestone to be Lieutenant-Colonel, vice D. V. O'Connell (dated Feb. 13th, 1913).

The undermentioned to be Lieutenants (on probation) (dated Jan. 24th, 1913):—Sumner Hugh Smith, Francis James Cairns, Henry Beddingfield, Frederick Churchill Davidson, John Forbes O'Connell, William Ormsby Wyndham Ball (late Cadet, Dublin University Contingent, Officers Training Corps), John Crocket, Humfrey Newnham Sealy, John Rowe, Stanley Dermott Large (late Cadet, Edinburgh University Contingent, Officers Training Corps), Edward Charles Beddows, George Eldridge Dyas (late Cadet, Inns of Court, Officers Training Corps), Arthur Hamilton Bridges, Conyngham Vernon Thornton, Cyril Helm (late Cadet, London University Contingent, Officers Training Corps), William Pennefather Croker (late Cadet, Dublin University Contingent, Officers Training Corps), Lieutenant Aubrey Gardner Brown (from the Royal Army Medical Corps Special Reserve), Percival Dillon Warburton, Robert Hemphill, and Albert Jackson.

Lieutenant James B. A. Wigmore, from the Seconded List, is restored to the establishment (dated Feb. 1st, 1913).

The undermentioned Lieutenants are seconded under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1909 (dated Jan. 24th, 1913): Francis J. Cairns, George E. Dyas, and Percival D. Warburton.

Surgeon-General H. G. Hathaway has taken up duty as Deputy Director of Medical Services in India on transfer from the Half-pay List of the Home Establishment.

Lieutenant-Colonel J. B. Wilson, senior medical officer and commanding No. 29 Company of the Royal Army Medical Corps at Jamaica, has been selected for the increased rate of pay under Article 317 of the Royal Warrant for Promotion. Lieutenant-Colonel B. Forde has been transferred from the Aldershot Command to the Southern Command, and appointed to the Salisbury Plain District to hold charge of the Military Hospital at Bulford Camp. Lieutenant-Colonel E. Eckersley, lately Deputy Assistant Director-General, Medical Division, War Office, has embarked for a tour of service with the Southern Army in India. Lieutenant-Colonel M. P. C. Holt, D.S.O., Honorary Surgeon to the Viceroy and Governor-General of the East Indies, has been granted an extension of his command of the Station Hospital at Kasauli to September next.

Major J. H. R. Bond has taken over charge of the Military Hospital at Naini Tal. Major H. M. Nicholls has arrived home on leave of absence from India. Major B. R. Dennis has been appointed for duty in the London District. Major A. R. O'Flaherty has left the Military Hospital at Devonport for a tour of service in India. Major H. K. Palmer has joined at Aden. Major W. M. Power has arrived home from Jamaica, tour expired. Major E. P. Connolly has been appointed to the Military Hospital at Rawal Pindi Cantonment. Major E. W. W. Cochrane has arrived home, tour expired. Major E. McDonnell has been appointed for duty to the Eastern Command. Major F. W. Begbie has taken over command of the Station Hospital at Kamptee Cantonment. Major H. Ensor, D.S.O., has been appointed Registrar at the Royal Herbert Hospital, Woolwich. Major T. H. M. Clarke, C.M.G., D.S.O., has taken up duty as Surgeon and Physician to the Royal Hospital at Kilmainham, Dublin, and Medical Officer, Royal Hibernian School. Major R. F. M. Fawcett, on arrival in Ireland from Jhansi Cantonment, India, has been placed under orders for duty in the Dublin District.

Captain C. Scaife has been transferred from the Military Hospital at Colaba, Bombay, to Belgaum Cantonment. Captain A. A. Sutcliffe has taken up duty at Newport on transfer from the Military Hospital at Chester. Captain A. Dawson and Captain V. C. Honeybourne, serving at Aden, have been placed under orders for duty on board the transport s.s. *Rewa*, which left Karachi for Southampton on Feb. 12th with time-expired troops. Captain J. C. Hart has arrived home for duty from North China. Captain J. H. Gurley has been selected for appointment as Specialist in Ophthalmology to the Royal Victoria Hospital at Netley. Captain A. S. Williams has been transferred from the Military Hospital at Khanspur, Murree Hills District, to Nowshera Cantonment. Captain F. B. Dalgliesh has taken up duty at the Military Hospital, Jubbulpore. Captain F. D. G. Howell has arrived home from India for duty, tour expired. Captain C. Kelly has been appointed to the Eastern Command. Captain H. S. Dickson has arrived home on leave of absence from Gibraltar. Captain A. E. S. Irvine has embarked on board the transport s.s. *Rohilla* for duty on the voyage to South Africa and back. Captain C. H. O'Rorke has been transferred from the Military Hospital at Roorkee to Allahabad Cantonment for duty. Captain J. B. Hanafin has taken up duty at the Military Hospital, Nowshera, on transfer from Peshawar Cantonment. Captain J. C. L. Hingston has been placed under orders for transfer

from the Ninth (Secunderabad) Division of the Southern Army in India to Burma, and on arrival will be appointed Specialist in Dermatology and Venereal Diseases to the Burma Division. Captain J. A. Renshaw has been granted six months' leave of absence home from India. Captain J. F. Granted has taken up duty as Specialist in Electrical Science to the Burma Division at Headquarters, Maymyo Cantonment. Captain L. Wood has been appointed to hold charge of the Military Hospital at Hyderabad, Sindh. Captain A. S. Littlejohns has arrived home for duty from South Africa, tour expired. Captain J. J. O'Keefe, on arrival in India for a tour of service, has been appointed to the Seventh (Meerut) Division of the Southern Army. Captain F. Forrest has joined the Irish Command. Captain A. R. Wright has arrived home on leave of absence from the Military Hospital at Malta. Captain G. P. A. Bracken has been granted six months' leave of absence home from India. Captain E. C. Caddell has taken up duty at Brigade Headquarters, Karachi, as Specialist in charge of the Bacteriological Research Laboratory.

Lieutenant J. S. Levack has been transferred from the Military Hospital at York to Bradford for duty. Lieutenant W. T. Graham has taken up duty at the Military Hospital, Tidworth, Salisbury Plain, on transfer from Durrington. Lieutenant P. Hayes has embarked for a tour of service in India. Lieutenant W. L. Webster has been transferred from Kilworth Camp to Limerick.

INDIAN MEDICAL SERVICE.

Colonel R. B. Roe has taken up duty as Assistant Director of Medical Services to the Sirhind and Jullundur Brigades, Third (Lahore) Division, in succession to Colonel R. W. S. Lyons, transferred to Divisional Headquarters.

Lieutenant-Colonel R. H. Castor has arrived home on leave of absence from India. The services of Lieutenant-Colonel W. D. Sutherland have been placed temporarily at the disposal of the Government of Bengal Presidency for employment on special duty at the Medical College, Calcutta. Lieutenant-Colonel J. C. Hulbert has been transferred from the Central Research Institute at Kasauli on completion of special duty to Mutha. Lieutenant-Colonel H. S. Wood, civil surgeon at Rajshahi, has been granted privilege leave of absence.

Major W. R. Battye, residency surgeon at Mewar, has been granted privilege leave of absence. Major T. Jackson has been selected for appointment to the Medical Council in Bombay. Major H. Ainsworth, on return from furlough, has taken up duty as Professor of Ophthalmic Surgery at the Government Medical College, Lahore, relieving Lieutenant-Colonel E. V. Hugo of the additional charge. Major G. Browse has been granted an extension of his leave of absence home from India by the Secretary of State Major C. H. Watson has taken up duty as Staff-Surgeon at Headquarters of the Derajat Brigade. Major S. H. Burnett has been selected for appointment as Superintendent of the Lunatic Asylum at Colaba, Bombay.

Captain D. G. R. S. Baker has been appointed Specialist in Ophthalmic Surgery. Captain F. C. Fraser has taken up duty under the Civil Administration in Madras Presidency. Captain C. H. Barber has been granted one year's extension of leave of absence on medical certificate. Captain S. H. Middleton West has arrived home on leave of absence from India. Captain R. T. Wells has taken up duty as Superintendent of the District Jail at Dera Ghazi Khan, in succession to Captain H. C. Keates. Captain N. W. Mackworth, officiating civil surgeon at Purnea, has been granted privilege leave of absence combined with study leave and furlough home from India for 15 months. Captain A. N. Thomas has been appointed to the substantive medical charge of the 105th Mahratta Light Infantry. Captain F. A. Barker has joined the Jail Department in the Punjab for temporary duty. Captain W. D. Keyworth has taken over officiating medical charge of the 110th Mahratta Light Infantry. Captain W. T. Finlayson has arrived home on leave of absence from India. Captain A. M. Jukes has taken up duty as officiating Deputy Sanitary Commissioner in the Metropolitan Circle, Calcutta. Captain N. M. Wilson has taken up duty as Plague Medical Officer at Shahpur. Captain J. M. A. MacMillan, civil surgeon at Hoshangabad, has been transferred temporarily to Jubbulpore on relief by Captain E. P. Wernicke.

Lieutenant V. P. Norman has been granted six months' extension of his leave of absence home from India on the recommendation of a medical board.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Captain Wilson Ranson is seconded for service with the Territorial Force (dated Feb. 8th, 1913).

The undermentioned Lieutenants to be Captains (dated Feb. 11th, 1913): William Darling and John M. Darling. The undermentioned Lieutenants are confirmed in their rank: Henry B. Parker and Robert D. Goldie.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Notts and Derby Mounted Brigade Field Ambulance, Royal Army Medical Corps: The undermentioned officers, from the list of officers attached to units other than medical units, to be Captains (dated Feb. 15th, 1913): Captain Alexander Tydd Mulhall and Captain Francis Raymond Mitchell Heggs.

Supernumerary for Service with the Officers Training Corps.—Lieutenant (Provisional Captain) Robert Davies-Colley (serving with the University of London Contingent, Senior Division, Officers Training Corps) resigns his commission (dated Feb. 19th, 1913).

For attachment to Units other than Medical Units.—John Orlando Summerhayes (late Lieutenant, 4th Battalion, The Oxfordshire and Buckinghamshire Light Infantry) to be Lieutenant (dated Feb. 8th, 1913).

Major R. J. Blackham, R.A.M.C., who has been associated with Colonel Roberts, I.M.S., in the treatment of His Excellency the Viceroy of India since the outrage at Delhi on Dec. 23rd, has been appointed Honorary Surgeon on His Excellency's Personal Staff.

Correspondence.

"Audi alteram partem."

WEISMANN AND LAMARCKISM.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Nov. 30th last there is a statement to the effect that Dr. A. M. Gossage at a meeting of the Harveian Society on Nov. 21st, read a paper on Heredity, in which the assertion was made by him that "Lamarckism, or the inheritance of acquired characters, must be regarded as disproved by the work of Weismann." But is that really so? and is the assertion by Dr. Gossage the result of an investigation by him of the teachings of Lamarck, or is it an assertion based on the *ipse dixits* of sundry biologists who fail to recognise the true teachings of Lamarck? I raise the question since I feel assured that to the physician will fall the duty, not alone of demonstrating the truths of Lamarckism, but also of bringing out of chaos the true factors at work in organic evolution and in heredity. Undoubtedly the work of Weismann is most important, since to him fell the rôle of demonstrating, once for all, how heredity is carried on and maintained in the organic world. But far from disproving the transmission of acquired characters, his work really cleared the way for the true understanding as to why and how acquired characters are transmitted.

What did Weismann really do? Following the suggestions of Nussbaum, he laid the foundation of his fame by demonstrating the continuity of the germ-plasm. He proved how, after division and subdivision of the zygote or fertilised egg, a colony of cells is formed out of which one only of the colony ultimately develops into a new organism; the other cells of the colony remaining undeveloped, constituting the germ-plasm, which becomes, in time, the sexual cells of the fully developed new organism. Hence the new organism becomes, as it were, a brother or sister of the previous organism, and not a son or daughter. This is, as I have said, the theory of the continuity of the germ-plasm on which the real fame of Weismann rests, and when we fully understand the process, we begin to realise the wonderful provision made by nature in order to secure that heredity shall be a process of true repetition of necessary characters. But Weismann, not content with demonstrating the continuity of the germ-plasm, went further and maintained that the germ-plasm

was inviolable—i.e., that it was impossible for it to be influenced or affected by any means. In order to justify his position, he was forced to postulate the theory that variations arose, not alone through a mixing of the germ-plasms of germ and sperm, but also that the inviolable germ-plasm was imbued with an intrinsic power to vary *per se*—i.e., that there was an inherent power within it rendering it capable of throwing out indefinite variations of varying qualities. On that assumption he postulated the theory of the all-sufficiency of natural selection. Subsequently, however, he was forced to admit, through the results of experiments by others, that the germ-plasm was not inviolable, but that it could be influenced by certain conditions in the environment. That the germ-plasm and its developments can be directly acted on by adverse conditions in the environment has been quite recently shown by Professor Adami in your pages. Professor Adami brought together overwhelming evidence that alcohol, other poisons, &c., do adversely influence the germ-plasm and its developments. A careful study of Professor Adami's address on Eugenics: unto the Third and Fourth Generation will well repay any physician for his trouble.

It will thus be seen that the difference between Lamarckism, or the theory that acquired characters are transmitted, and Weismannism resolves itself really into a question of degree, especially as regards direct influences. It is most important to recognise that fact, since the Lamarckian fully recognises the importance of the continuity of the germ-plasm as demonstrating how the ontogeny of the individual is a recapitulation of its phylogeny. But not always an exact repetition, since the living organism is capable of being modified through the changing influences of the environment; which influences, if permanent, are gradually transmitted and must appear, even if unrecognisable, in the ontogeny. Now, although the direct injurious influences are transmitted through individuals, as proved by Professor Adami, there is no doubt that the direct inimical influences are, in the long run, as seen in racial survival, counteracted by an indirect reaction of a beneficial nature. This is clearly seen as regards infectious diseases, adverse conditions of life, as in city life, and is clearly demonstrated in the Styrians, the arsenic eaters. This racial survival through adaptation is attributed to natural selection by an eminent writer Dr. Archdall Reid. But its explanation is far easier to the physician by recognising the fact that all living bodies in the presence of continuous inimical influences tend to protect themselves by elaborating an antidotal principle which, ultimately by the educability of the cells, serves to prevent extinction, and thus to lead to survival of a race. There is a tendency amongst biologists to belittle the opinions of those who have not been trained in biological laboratories. Such disparagement should, however, have no influence in deterring physicians from studying the questions involved, since the very nature of their training and life-work enables them to grasp facts relating to the living body.

Biologists have become buried in the great accumulation of biological facts, hence what is required is that any competent to do so should arrange and rearrange such facts and coördinate them with a theory by which all can be explained. That can be done, I hold, by the theory that functional adaptation is brought about through the inheritance of acquired characters. Perhaps it is well to draw Dr. Gossage's attention to the fact that Nussbaum, who first formulated the theory of the continuity of the germ-plasm, regarded it as in no way militating against the theory of the transmission of acquired characters. It was Weismann's strong belief in the factors of natural selection that misled him into believing that the continuity of the germ-plasm is wholly operative against the transmission of acquired characters.—I am, Sir, yours faithfully,

Barbados, Jan. 20th, 1913. R. F. LICORISH, M.D.

DERMOIDS OF THE KIDNEY.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 8th I notice a clinical lecture by Mr. Jocelyn Swan on renal tumours, in the course of which he says: "There have been recorded only two cases of dermoid of the kidney."

It is quite true that even in the latest monographs on renal tumours little or no reference is made to the occurrence of dermoids in this organ, and by some authors their occurrence here is denied. As, however, I know of several cases besides those instanced by Mr. Swan, it seems desirable that pointed reference should be made to this matter, with the view of clearing up erroneous beliefs in the contrary sense, which have an important bearing on the pathogenesis of dermoids in general. For instance, it has been alleged that dermoids are never found growing primarily from any part or organ of the abdomen save the ovary, and on this erroneous basis ovarian dermoids have been presumed to be quite different in origin from dermoids in general.

Another point which merits attention in this connexion is Paget's case of renal dermoid. Most authors who have cited this case have, like Mr. Swan, referred to it as a human specimen, whereas it is from a sheep. The specimen is in the Royal College of Surgeons Museum (No. 1904 of the pathological series): a piliferous dermoid, embedded in a mass of fat, which had replaced one of the kidneys, of which there was no trace. Other cases of renal dermoids, besides the Haeckel-Wedemann one referred to by Mr. Swan, have been recorded by Goldsmith,[1] Rider-Thompson,[2] and Madelung-Schlegtendal.[3]

In Goldsmith's case the dermoid was subcapsular and intimately blended with the upper pole of the right kidney. It was piliferous and comprised a tooth. In the Madelung-Schlegtendal case the calcified dermoid seemed to occupy the place of the right kidney, of which the only trace discoverable was a thin layer of its substance blended with the cyst wall. In the Rider-Thompson and Haeckel-Wedemann cases the dermoids seem to have been let into the renal substance in the vicinity of the renal pelvis. The contents of the former tumour comprised neuro-epithelial, cerebral-like substance and bone, while the latter was simply piliferous. Wyss met with a dermoid cyst of the kidney with ossified walls which had replaced nearly the whole kidney, only some remains of its upper and lower poles being recognisable. The cyst contained masses of cholesterine.

Besides such cases as the foregoing I know of several instances of dermoids situated in the extraperitoneal tissues, in the immediate vicinity of the kidney. In Ruge's case the left kidney was in close touch with the inner side of a cyst of this kind, and in Zweifel's case the dermoid was intimately connected with the top of the left kidney, which it had displaced into the pelvis. Both of these cysts, besides their pultaceous contents, were also piliferous, and enteroid cysts were associated with Ruge's tumour. In Bardenheuer's case the dermoid lay over the right kidney, and in its wall teeth, bony fragments, and hairs were found. A retro-peritoneal paranephritic dermoid cyst of the simplest type was intimately blended with the capsule of the kidney in Czerny's case, and Ehler's remarkable conglomerate of four dermoids was situated over the hilum of the left kidney.

I am, Sir, yours faithfully,

Walton-by-Clevedon, Feb. 14th, 1913. W. ROGER WILLIAMS.

TOXIC SYMPTOMS ARISING DURING THE USE OF NOVOCAINE.

To the Editor of THE LANCET.

SIR,—In view of the well-merited favour which novocaine now enjoys as a local anæsthetic, it may be not without interest to record two cases in which alarming symptoms developed during the course of its administration. These both occurred during the month of July in the department of the Royal Infirmary, Edinburgh, with which I was connected, and I submit them for publication by kind permission of Mr. E. Scott Carmichael, who was in charge at the time.

CASE 1.—The patient, a stolid, hearty man, 43 years of age, a weaver by trade, came in order to have two sebaceous cysts removed from the under surface of the chin, immediately below the lower margin of the mandible and slightly to the right of the middle line. He declared that, apart from this condition, he had never had any trouble in his life, and subsequent examination confirmed this by revealing a perfectly normal heart and vessels, healthy kidneys, and the remaining systems apparently equally efficient. No nervousness whatever was shown as he took his place on the table, and the assurance was smilingly given that the prick of the needle was hardly felt. Two drachms of a 1 per cent. solution of

[1] Transactions of the Southern Surgical and Gynæcological Association, 1909, vol. xxi.
[2] THE LANCET, 1906, vol. ii., p. 1589.
[3] Archiv für Klinische Chirurgie, Band xxxvi., 1887.

novocaine, equivalent to slightly more than one grain of the solid drug, and containing not more than three-quarters of a minim of 1 in 1000 solution of adrenalin hydrochloride, were then slowly introduced. The injection was made in the usual manner, the needle being inserted just below the skin and gradually withdrawn as the fluid was expelled. During this process, which occupied approximately three minutes, the patient remained placid and unmoved. Then, without the slightest warning, the pupils became widely dilated and fixed, consciousness had completely gone, and a cold, clammy sweat burst out upon the face. Both the breathing and the pulse were slow, the former shallow and scarcely audible, the latter thready and irregular. The whole body became markedly rigid. In this state he remained for fully a minute, the bodily rigidity continuing as a prominent feature. Then the pupils were seen to contract slightly and to pass into a state of hippus, the muscles relaxed, and consciousness was recovered with a start that nearly carried the patient off the table. The pulse, although its rate remained as low as 55 per minute, regained its amplitude and force. The temperature was found to be subnormal—97·6° F. The cysts were now removed, efficient anæsthesia having been produced by the injection. During the operation, however, the patient experienced great nausea and a feeling as if he were "going off again," as he himself expressed it. The face remained pale and covered with beads of clammy perspiration. Strychnine hydrochloride, 1/60th of a grain hypodermically, and 4 drachms of brandy by the mouth hastened recovery, and in the course of an hour, with the exception of slight weakness and continued nausea, he was quite himself again.

In connexion with the above symptoms other possible causes suggest themselves, and must as far as possible be excluded before we can attribute the blame to the absorption of the drug. Thus, mere fright, which in a highly strung patient might be accounted a sufficient explanation, seems here to be out of court when one considers the disposition of the patient and the prolongation of the collapse. Pain could hardly be held as responsible, as the patient made the positive statement that he felt no pain or discomfort; and that, immediately before consciousness was lost. Lastly, it would be difficult to believe that the minute quantity of adrenalin present could have caused such far-reaching effects.

CASE 2.—This case, that of a male aged 44, I shall not emphasise. A musician by profession, the patient's nervous disposition made it difficult to judge how far his symptoms were due to his nervousness and how far to the anæsthetising drug. The same quantity of novocaine in the same strength of solution as in Case 1 was injected into the base of the right index finger for the removal of a painful nail. Shortly after the introduction of the fluid he had an attack of syncope with collapse and subsequent vomiting. I am inclined to think, from the delayed onset, the subsequent vomiting, and the long continuance of the symptoms, that the novocaine had at least some share in their production.

Such cases as those recorded above must be comparatively rare. In our own department the drug was widely used every day, and I have observed no others similar to them; nor has any case been recorded within my knowledge in the English literature at any rate, since the use of novocaine as a local anæsthetic originated in Germany about the year 1905. The possibility that some persons may have an idiosyncrasy towards it is thus suggested. It may be of interest in passing to point out that in 1910[1] Major Gabbett recorded a case of death under spinal anæsthesia, induced by novocaine, in which, as in the first case recorded in this paper, rigidity of the body and limbs was a marked feature.

Again, the contingency of the solution being injected directly into a small vein, especially in such a vascular region as the head and neck, must not be overlooked; but the precaution taken of gradually withdrawing the needle as the injection was made rendered it unlikely in our cases. Lastly, the nature of the solution of novocaine falls to be considered. Most writers are of the opinion that aqueous solutions of the drug may be boiled repeatedly and kept for long intervals without any degeneration or hydrolysis taking place. As used in the Royal Infirmary, 2 per cent. solutions are carefully prepared in the infirmary laboratory and sent up in sterile flasks for use in the wards. These are diluted to the requisite strength with normal saline just before use. Although the method of preparation is uniform, the efficiency of the drug as an anæsthetic appears to vary from time to time, and not only so, but in some solutions a yellow tinge becomes perceptible after one or two boilings. This was noted by Lemaire.[2] The writer advises that such solutions should be discarded as being irritating to the tissues. Is it not possible that what is irritating locally might be toxic when absorbed into the general circulation? Of course, the rarity of toxic symptoms in the use of the drug shows that the formation of nocuous products is of by no means common occurrence; yet I think that the possibility of their being present and the conditions under which they are formed are subjects worthy of further investigation. In the solution used in Case 1 there was a distinct yellow tinge, and since our unpleasant experience there we make a point of discarding all preparations that are not perfectly clear.

I am, Sir, yours faithfully,

R. CAMPBELL BEGG, M.A., M.Sc., M.B., Ch.B. Edin.,
M.R.C.S. Eng., L.R.C.P. Lond.,
Late House Surgeon to the Out-patients, the Royal Infirmary, Edinburgh.
Germiston, Transvaal, Jan. 4th, 1913.

[1] Brit. Med. Jour., March 19th, 1910.

ARTIFICIAL RESPIRATION.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Feb. 1st, p. 345, Professor Leonard Hill asks why mouth-to-mouth artificial respiration is not called "Elisha's method." I may state that in many parts of the United States of America, especially New York, it is so called. In the Sloane Maternity Hospital there, one of the finest maternity hospitals in the world, the method is used considerably when the need for it arises. Of course, it is used elsewhere for patients other than the new-born. In a paper in course of preparation I discuss various practical methods of starting the new-born non-breathing child to normal respiration. It might not be out of place here to give the Elisha method as applied to the new-born.

In the Elisha method a towel is placed around the feet to prevent slipping, and the child is held upside down. A little piece of gauze wrapped on the little finger clears the mouth and throat of any mucus or other material. The child is then placed on its back on a table, a piece of gauze put over its mouth, and the legs are bent up so that the knees are pressed into the pit of the stomach to prevent its being blown up. The other hand is placed under the head, neck, and shoulders. The mouth of the person holding the infant is placed over its mouth, and one blows carefully a moment. Usually the chest of the babe can be felt to fill. Then bend the head and shoulders forwards so as to drive out the air. Repeat at the rate of about 15 times to the minute, and after a few times see if the child will start for itself. It is wonderful how a few breaths like this will turn a purple baby pink. Then if it does not start, blow on its stomach, turn it upside down again, and spank the bottom of the feet or buttocks. Flick a little cold water on to the abdomen, warm and cold tubbing, and if it gets blue again repeat the Elisha method. The combination usually starts the baby. I have helped do these methods for two hours and been rewarded by the child starting itself at the end.

I agree with Professor Hill that the credit ought to go to the originator, and in spite of any other names that may be applied to this procedure I think that none will claim priority.

I am, Sir, yours faithfully,

Toronto, Canada, Feb. 3rd, 1913. GORDON G. COPELAND.

TREATMENT OF BOILS, CARBUNCLES, &c., BY SULPHURIC ACID.

To the Editor of THE LANCET.

SIR,—About four years ago Dr. J. Reynolds and Dr. Russell J. Reynolds, in a short note, drew attention to the treatment of boils, carbuncles, and other troubles due to staphylococcic invasions by the internal administration of sulphuric acid in 20 minim to 30 minim doses, well diluted, every 4 hours.

Since reading that note I have employed no other remedy in the treatment of boils and carbuncles, excepting

[2] Repertoire de Pharmacie, September, 1906.

protective dressings, and have experienced most gratifying results; without exception the condition has quickly improved in those cases where suppuration had been well established, and it has not failed to abort commencing mischief or secondary crops. My thanks are due to the authors for bringing their treatment to my notice.

Recently I adopted this treatment in a case of severe acne; the drug effected a rapid improvement and acted better than any remedy that had been employed in this case during a period of 35 years. In the case of a morphia habitué, who when he came under treatment had threatening abscesses on both arms, due to the injection of septic solutions of morphia, I employed this remedy with the usual satisfactory results so far as the inflammatory conditions were concerned. At the same time there was a vast improvement in the condition of the gums, which were affected with extensive pyorrhœa alveolaris. Both the patient (who was a medical man) and I were inclined to ascribe this decrease of oral sepsis to the sulphuric acid. I recall another morphia case, where the arms, legs, chest, and abdomen were covered with scars of a keloid character due to old injection abscesses, in which there occurred intense itching. After trying many drugs in vain, as there were a few pustules, I gave sulphuric acid, and the patient received immediate relief. In this case I have just heard that the irritation has returned a few weeks after treatment was discontinued.

I have but few opportunities here to treat ailments caused by staphylococcic infection. Still, my experience, though limited, leads me to believe that this method of treatment would be largely employed if more generally known, and it is to be hoped that its original authors will publish a further and more extensive account of the results which they have obtained.

I am, Sir, yours faithfully,

F. S. D. HOGG.

Dalrymple House, Rickmansworth, Feb. 18th, 1913.

THE ABDOMINO-PERINEAL OPERATION FOR RECTAL CANCER: A SUGGESTION FOR REDUCING THE MORTALITY.

To the Editor of THE LANCET.

SIR,—It is now generally recognised that the surgeon operating for cancer is not doing his duty to his patient unless he removes the diseased area as widely as is compatible with safety to life. The abdomino-perineal operation has been evolved to meet this axiom, and from the point of view of permanent results has an excellent record, but unfortunately there is attached to it an appalling mortality from something over 20 per cent. in selected cases (women under 60 being the best subjects) to probably nearly 40 per cent.

The causes of the mortality are chiefly sepsis and shock; embolism also must be mentioned. Shock can be met by the usual treatment, which at present we do not know how to improve, but in the matter of preventing sepsis I think more can be done. I performed this operation some two years ago in conjunction with another general practitioner on a man aged 60. There was no shock and the patient appeared to do well for three days, but expired on the fifth day from toxæmia generated in the pelvic tissues. I then came to the conclusion that this patient would have had a much better chance of surviving if he had had his bowel cleaned out before operation, and determined if it ever fell to my lot to perform this operation again to do a preliminary colotomy and wash out the bowel for a fortnight with antiseptics.

I would suggest that a two-stage operation on these lines should be adopted as a routine. It would have the following advantages. Firstly, with a growth in the rectum there are periods, at any rate, of intestinal stasis when the bowel is full of fluid, evil-smelling fæces teeming with pathogenic microbes and toxins, the latter being absorbed by the bowel and poisoning the whole system. A colotomy would allow free drainage and get rid of the poisoning, and the patient would have a fortnight with good appetite, &c., and would undoubtedly at the end of that time be in a better plight for undergoing a severe operation. Secondly, the washing out of the bowel would, apart from clearing away all fæcal material and the bulk of the organisms, clean up the surface of the growth, and, as constant reinfection of the growth if ulcerated would be absent, any glands that might be enlarged from sepsis would subside. Also inflammatory thickening round the growth would subside, and at the second operation, which in a doubtful case might be exploratory, the freedom from inflammation might make a growth operable which otherwise would have appeared inoperable. Again, at the second operation any organisms that might have been in the lymphatics or perirectal tissues would have been destroyed or rendered immune in the course of a fortnight, and so only healthy tissues would be cut through, and another source of infection eliminated. Thirdly, the operation itself would be much shortened, as the surgeon would be operating on collapsed clean bowel instead of bowel full of filthy fæcal matter. Time would be saved, too, in that instead of having to perform a colotomy through a stab wound in the inguinal region, he would only have to close the upper end of the divided pelvic colon by a purse-string suture or two. Again, knowing that the rectum was clean and empty, no time need be wasted in elaborately closing the anus before starting the perineal part of the operation. To sum up, the perineal operations, though safe, have very bad results as regards recurrence. The abdomino-perineal is a scientific operation, and the late results in those cases that survive are excellent, but the immediate mortality is great and is largely due to sepsis. Can these deaths due to sepsis be avoided or largely reduced by a preliminary colotomy and antiseptic douches?

I am, Sir, yours faithfully,

R. LEONARD LEY, M.B., B.C. Cantab.

Great Yarmouth, Feb. 14th, 1913.

THE SERO-DIAGNOSIS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—For some months past we have been engaged in investigating in these laboratories (Director, Professor R. T. Hewlett) the value of the sero-diagnosis of pregnancy, evolved by Abderhalden in accordance with his hypothesis of the protective ferments. Up to the present we have been working mainly with the dialysis method, and we are able to confirm Abderhalden's results in so far as we have always obtained positive tests with sera of pregnant cases. Our excuse for troubling you with this letter is, that in the course of our experiments we found that these ferments were not necessarily tissue specific because normal uterine tissue gave a positive reaction, and whilst our observations were made early in January we find that Dr. Paul Lindig, of Jena, has published the results of his observations in the *Münchener Medizinische Wochenschrift* of Feb. 11th, 1913, No. 6, p. 290, which are identical with ours. There is, however, this difference in the investigations carried out by Dr. Lindig and ourselves in that we have tested a much larger number of normal controls. At the same time we made some polariscopic observations (Abderhalden's optical method) with placental peptone prepared by ourselves, but it is too early at present for us to come to any definite conclusions as to the clinical value of the optical method, but we hope shortly to publish our complete results.

We are, Sir, yours faithfully,

L. W. RAJCHMAN.
J. G. HARE.

King's College, London, University Laboratories, Chandos-street, Strand, W.C., Feb. 17th, 1913.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—The matter of voluntary payments to panel doctors by insured persons requires more attention.

As a considerable number of insured persons are desirous of ignoring the medical benefit provisions of the National Insurance Act, and have intimated to their doctor that they wish to be attended by him in the ordinary way, in spite of the fact that he has accepted them as panel patients, I have taken legal opinion on the following question, and have received the reply which is given below.

Question.—Is it open to a practitioner on the panel to receive payment voluntarily made for treatment (such treatment being within the competence of a general practitioner) rendered to an insured person under his care, such an insured person not being a person who has made his "own arrangements" in the manner provided by the Regulations?

Answer.—As the Regulations stand I think it is open to a practitioner

on the panel to receive voluntary payments for treatment within the competence of a general practitioner.

I am, Sir, yours faithfully,

Rochdale, Feb. 18th, 1913. J. CUTHBERTSON WALKER.

To the Editor of THE LANCET.

SIR,—With all the respect due to one who has been in the profession three times as long as I have, I maintain that Dr. George C. Crichton lays himself open to the charge of having allowed the wish to be father of the thought. The actual state of affairs is that the majority of practitioners in London at any rate repudiate the right of the British Medical Association (or rather its provincial majority) to rescind or abrogate the pledge. This pledge was given by each signatory in the terms that all service under the Act is to be refused until the terms and conditions of such service shall be satisfactory to the whole profession. It is therefore undoubtedly as binding now as ever it was upon every man and woman who has at heart the scientific and economic interests of our profession and the real improvement of the public health. The panel system is still officially branded with the stigma of being "derogatory" to those who serve under it, and it is merely glossing the facts and hiding the truth to pretend that it is not also "dangerous to the public health." For these reasons it is evident that no action by the British Medical Association can ever bring about a fusion between the two present (and, I fear, future) classes of doctors, the Independents (or "Die-hards") and the Panellites.

I am, Sir, yours faithfully,

Brixton-hill, S.W., Feb. 17th, 1913. DONALD J. MUNRO.

THE ALL-INDIA SANITARY CONFERENCE.

(FROM OUR OWN CORRESPONDENTS.)

(*Concluded from p. 488.*)

Sewage and Refuse Disposal.

THE afternoon of the fourth day was devoted to sewage and refuse disposal, and much interesting matter was forthcoming, including the use of small incinerators and destructors.

Major F. H. HUTCHINSON, I.M.S., gave the results of the Poona experimental sewage installation.—Mr. C. L. COX described the Colombo drainage scheme and sewage treatment.—Major S. A. HARRISS, I.M.S., in a paper on Night Soil Disposal and associated Fly Breeding, raised the following points: 1. What is the best method of excreta disposal in towns to prevent fly-breeding in night soil (*a*) in a colloid condition, and (*b*) in a solid condition, from private latrines, having regard to probable expense and income to the municipality, and the possibility or impossibility of irrigation of trenched land? 2. Howard has shown that flies can come to the surface through 48 inches of sand. In these circumstances how can night soil best be disposed of to prevent fly-breeding at fairs, having regard to (*a*) expense, and (*b*) fluctuating population, which may reach 2,000,000 a day?—Dr. W. R. MACDONALD, health officer of Madras, gave his results with small incinerators in Madras, and members of the conference had an opportunity to inspect the results, which were excellent. Dr. Macdonald warned against the use of night soil. An interesting discussion took place.—Dr. A. G. NEWELL said he had seen nearly all the different types of incinerators, and considered they had effected a financial saving, being useful in filling up low-lying land. Those in Madras were for the burning only of rubbish free of night soil and gave good results.—In reply to Major WILLIAMS, who said the Burmese objected to the smell of burning, Dr. MACDONALD said he had had only 12 complaints out of a population of over 500,000.—Dr. T. M. NAIR said that there was a distinct prejudice against the burning of night soil. The success of incinerators depended on the separation of the night soil from rubbish.—In reply to Dr. MASTER, Dr. MACDONALD said that the maximum time of storage prior to incineration was 25 hours. There arose no question of congestion of rubbish in the dry season.—Major WILLIAMS said a temperature of 2000° F. was necessary to prevent nuisance, for the smell of slow combustion might be carried half a mile or more.—Colonel WILKINSON, I.M.S., said that combustion should be exceedingly slow to minimise nuisance from smell, and instanced the boiling of milk over a slow fire as contrasted with the smell from burning of milk. He suggested gradation in incinerators with night soil on top. It was said that it was morally wrong to deprive the soil of refuse and night soil, but the municipality saved by incinerators the cost of cartage. In the absence of sewers he regarded the incinerator as the best method of dealing with night soil.—Captain W. C. ROSS thought incineration of rubbish very easy and that of night soil very difficult. They could not be discussed together.

Major HARRISS read a paper on the Sullage Farm at Agra to show that sullage farms when properly run are paying concerns, and form a useful adjunct to schemes for the improvement of the milk-supply.

Infiltration Gallery at Conjeevaram.

On the fifth day 25 delegates went to Conjeevaram to inspect the infiltration gallery. Conjeevaram is a town 45 miles south-west of Madras, in the valley of the river Vegavati. At the site of this town this river is 1000 feet wide, although its source is only some nine miles distant, and it possesses a deep sandy bed. Flood water is rarely seen in the river, and the quantity is small. The river water has the reputation of flowing underground through the sandy bed, and thousands of acres of paddy are cultivated by spring or surface channels excavated therein. The works consist of a gallery in the river bed and a pumping station. The gallery is 550 feet long, and consists of four rows of open-jointed 9-inch stoneware pipes, surrounded by broken stone filling to a depth of 7 feet, of which 6 inches are below the barrel of the pipes. The bottom of the gallery is fixed at a depth of 20 feet below the river bed at the left bank of the pumping station. The broken stone is of 1½-inch size. The four rows of pipes terminate in a well on the river bank. From this well the water is conducted through a cast-iron pipe to the suction well, the end of the pipe being provided with a reservoir sluice, so that ingress of water into the suction well can be cut off when this well requires examination. The suction well is 10 feet in diameter.

Milk-supply.

On the sixth day the problems connected with the milk-supply were discussed in four papers. The first was that on the Utilisation of a Continuous Temperature of 50° C. for the Preservation of the Potability of Milk, by Military Assistant Surgeon MACKEY, who stated that the temperature of 50° C. was on the border line between an incubating temperature (30–40° C.) and a sterilising temperature. Organisms did not multiply at this temperature and in time were actually killed. The method was simple, since it could be carried out by a small kerosene oil lamp, and such a milk required only slight cooling to be safe for infants.

Rai KAILAS CHANDRA BOSE Bahadur, C.I.E., read a paper on the Milk-supply of Calcutta.

Dr. NEWELL, health officer of Lahore, read a paper on Some Practical Points in the Indian Milk Problem, in which he showed from his experience, supported by veterinary authorities, that generally speaking tuberculosis was uncommon in Indian cows. He insisted on the danger of cow-dung as a factor in the production of the disease, and recommended, among other things, training and certification of dairy workers and veterinary students, municipal free provision for dairies of trained dairymen, trained veterinary inspectors, the reduction of octroi charges and the award of prizes for clean milk, stringent licensing conditions in town dairies, provision of laboratories for milk analysis for large municipalities, and a provincial one for smaller ones, and the appointment of a milk commission.

A fourth paper, on the Milk-supply of Towns, by Major HARRISS, was sent in whilst the Congress was sitting.

Other Papers.

Among the other subjects dealt with were:—

Vital Statistics.—Papers were read on the Vital Statistics of Bengal, by Dr. C. A. BENTLEY, and by Babu BEPIN BEHARI BRAMACHARI on Mortality in the Cossipore-Chitpur Municipality. Education of the Public in Hygiene was discussed in a short paper by Major T. G. N. STOKES, I.M.S., and was the occasion of a detailed reply by Major W. GLEN LISTON, I.M.S., while Infantile Mortality, its Cause and Prevention, was dealt with by Rai KAILAS CHANDRA BOSE Bahadur, C.I.E. These two papers created some interest.

Inspection of Food and Drugs.—In an able paper Dr.

NAIR explained how little was or could be done in the cities of India to prevent adulteration of food and drugs.—Dr. NEWELL urged a general Act giving adequate powers to local governments to deal with local requirements, as well as a separate Pharmacy Act.

Medical Inspection of School Children was the subject of a paper by Dr. AMRITARAJ, and in the discussion which followed it was shown that in no province had this been systematically taken up.

Rural Sanitation.—This was discussed in two papers, those of the Hon. Khan Bahadur SAYAD MAHDI SHAH and Mr. MOTA LAL GOSH.

Rural Water-supplies.—The Government of India having asked for information as to the arrangement in each province for the provision of protected wells in rural areas, the following are abstracts of some of the replies:—

Madras.—The chief sources are rivers, tanks, and wells. In dry weather the people dig pot wells in the river bed. These are factors in the spread of cholera. Tanks are reserved for drinking and others for bathing, but though guarded by watchmen strangers do not discriminate between them. In villages draw wells are in use; as far as possible step wells are being converted into draw wells.

Bombay.—In Gujarat and the Deccan wells and rivers supply the drinking water. Many of the former have steps and disseminate cholera. It is common to sink wells in the beds of nullahs which dry up as soon as the rains stop. They are mere pits in loose soil. In the Upper Sind the wells are often near stables, cowsheds, and manure heaps. Near the delta of the Indus it is useless to sink wells, as they become brackish. There the people have to resort to the "dhands" or pools left by annual inundation. These are often disgustingly dirty as the hot weather advances. Buffaloes waddle in them and pariah dogs bathe in them, and side by side people take the liquid mud to drink.

Bengal.—Wells are suitable for water-supply in the districts of Bankura, Burdwan, Berbhun, and Midnapur, the soil in parts of these districts being laterite. In other parts tanks, khals, or rivers are the sources. The water is brackish. A Government committee is considering the best methods of improving the water-supply.

United Provinces.—The somewhat lengthy reply shows that grants have been given for improving existing wells and sinking tube wells on certain conditions.

Punjab.—The provision of protected wells has been in the main left to private charity and large sums have been expended. The provision of good wells has been one of the conditions and rewards to villages in the canal colonies and elsewhere, but these rewards have been discontinued. Hand-pumps are in use in some districts.

Burma.—In the great part of the Delta of the Irrawady river the water from shallow wells is brackish and unsuitable. Subsoil water is near the surface and prevents well-sinking, and deep wells have failed to give potable water.

On the Delta and coasts rain-water tanks are common. A sufficient water-supply can be got by storage in tanks where the rainfall is over 80 inches a year. Shallow pit wells are also used. Farther inwards wells are relied on. The method of drawing water gives easy means of pollution. In Burma there is no efficient means for dealing with rural sanitation. The Burmese are extremely conservative and lazy, and no form of pump yet tried has lasted more than a few months.

The Engineering Section.

In the Engineering Section many interesting subjects were discussed. Fly-proof Latrines, by Major H. A. FORBES KNAPTON, I.M.S.; Models of Sanitary Work in Madras, by Mr. J. M. LACEY; Dust Prevention, by Mr. E. P. RICHARDS; and Sanitary Problems of Madras, by Mr. W. HUTTON, provided much material for discussion; while the Relationship between English and Indian Sanitary Engineering Practice, by Mr. G. B. WILLIAMS; and a Note on Sanitation on India, by Mr. C. N. MANDY, were well worth hearing.

The Conference came to an end on Nov. 20th, probably to meet again next year at Lucknow or Calcutta. All were loud in their praise of the way the Conference had been organised and the hospitality of Madras.

THE MALARIA CONFERENCE.

The Malaria Conference began on Nov. 18th and lasted three days.

The President's Address.

Sir PARDEY LUKIS, I.M.S., Director-General of the Indian Medical Service, welcomed the delegates in an able address, pointing out the work that had already been done and how much still remained. With regard to the journal *Paludism*, he said it had not received adequate support, and it was contemplated to substitute for it a journal of Indian research. He justified the existence and explained the work of the mosquito surveys, discussed the various methods of mosquito reduction, urged a pure water-supply, discussed the quinine prophylaxis at some length, and concluded that for local reasons in India quinine prophylaxis must be largely restricted to the destruction of the parasites in the blood of those who are suffering from malaria in either its acute or its chronic form, especially in the fever season. He discussed the etiology of blackwater fever and the group of allied diseases, and reviewed our present knowledge of the other febrile diseases to be dealt with, and urged his hearers to be "up and doing" and not to wait until some French or German parasitologist came along and discovered the secrets of the many continued fevers which daily confronted the Indian medical profession.

The Epidemiology of Malaria in Madras was ably dealt with by Captain J. H. HORNE, I.M.S., in Bengal by Dr. BENTLEY, in the Central Provinces by Major STOKES, in Imperial Delhi by Captain E. C. HODGSON, I.M.S., and in the Jeypore Agency Estate by Major E. L. PERRY, I.M.S.

The Action of Quinine and the Treatment of Blackwater Fever gave Major A. C. MACGILCHRIST, I.M.S., an opportunity for discussing the much-debated point, and his paper created some difference of opinion.

The Diagnosis of Latent Malaria was dealt with by Captain H. W. ACTON, I.M.S., while Major P. N. O'GORMAN LALOR, I.M.S., described the studies of malaria in Italy during 1910. Anti-malaria measures in Bombay and quinisation of school children in the United Provinces were described respectively by Dr. J. A. TURNER and Major J. D. GRAHAM, I.M.S.

Stegomyia operations were well described by Major LISTON, Bombay, Dr. MHASKAR, Karachi, Major MACGILCHRIST, Calcutta, Captain HORNE, Madras, and Major O'GORMAN LALOR, Rangoon.

Kala-azar formed the subject of interesting papers by Lieutenant-Colonel C. DONOVAN, I.M.S., and Captain T. C. MCCOMBIE YOUNG, I.M.S., while Captain F. P. MACKIE, I.M.S., read an interesting paper on Protozoal Diseases, particularly those due to trypanosomes.

The interest in the Malaria Conference was well sustained throughout three days; the papers provided ample material for discussion and were of great interest.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of the Liverpool Royal Infirmary: Increase in the Honorary Staff.

THE annual meeting of the trustees was held in the board room of the hospital on Feb. 5th, under the presidency of Mr. Ralph Brocklebank. The honorary treasurer, in reviewing the financial position, said that the year had been full of critical and anxious moments, but, despite all fears, the lay and medical staffs had worked loyally together. During the year there had been a large number of changes among those attached to the hospital, and also in the means and work of administration. Three members of the committee resigned and two died. By the death of Dr. A. T. H. Waters in June last, who was honorary physician from 1870 to 1886, the honorary staff lost their senior consulting physician. Mr. E. J. M. Phillips, dental surgeon since 1881, resigned his post, and the vacancy was filled by the election of Mr. S. Hallam. Dr. John M. Hunt, the honorary laryngologist, retired after 20 years of diligent service. On June 30th, 1911, Mr. Brocklebank resigned the position of chairman, and early in 1912 Mr. H. Wade Deacon was elected to the vacant position. The new out-patient department, which had been in constant use for just over a year, had fully proved its usefulness, and had come up to expectations in its adaptability for dealing with its work to the advantage both of the patients and staff. The theatre there had been most useful in dealing with 1103 minor

operations, to the relief of the other theatres in the main building. About the middle of the year the X ray department was moved to its new quarters, which had been fitted up with the latest equipment, and the new conditions enabled the staff to deal with that important work most expeditiously. Owing to the extra nursing staff required for the out-patient department and casualty beds, together with the fact that the amount contributed from the hospital funds of the nursing institution for many years had not been sufficient for the cost of nurses required, it had been decided to increase the amount this year. The attention of the committee having been called to the large number of in-patients who came from a distance, it was decided to make a charge towards the cost of maintenance. That result had proved satisfactory. The committee was glad to be able to report that ward accommodation on a site belonging to the infirmary would shortly be provided for the treatment of tropical diseases, all necessary arrangements having been settled between the committee and the committee of the Liverpool School of Tropical Medicine. 3974 patients had been admitted to the wards and 369 cases were received in the casualty wards. The expenditure, owing to the high price of coal, the increased demands for more expensive drugs and dressings used in the work of the new out-patient department, together with the extra contribution to the nursing home, showed an increase of about £1000. Every year, owing to altered conditions, the expenditure continued to grow, with the result that the hospital debt increased at the rate of about £2000 a year. On Dec. 31st £7500 were due to the bank, and it was proposed to transfer £1500, being one-tenth of the maintenance fund, which would leave the debt at £6000. That was a state of affairs the public ought not to allow to continue. A vote of thanks to Mr. Brocklebank for his services as president and for his donation of 100 guineas was carried. The Earl of Derby was unanimously elected president for the ensuing year. The committee has decided to appoint an additional honorary assistant physician. This step was necessitated by the additional work in the new out-patient department.

The Lancashire County Council and Sanatoriums.

At the quarterly meeting of the county council held at Preston on Feb. 6th Mr. H. Wade Deacon (the chairman of the finance committee) reiterated a strong word of warning against any premature capital outlay for the provision of permanent buildings as sanatoriums. Looking at the decrease of tuberculosis, he advised that temporary provision should alone be made. The small-pox hospitals which were erected at great cost stood empty. The following medical men were appointed members of the Lancashire Insurance Committee: Mr. John Chadwick, Mr. Robert Sephton, Mr. Charles J. Trimble, C.M.G., Mr. John E. Dunn, and Dr. Manley M. Fitzpatrick.

Feb. 11th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

AT the annual meeting of the Court of Governors on Feb. 12th the chief item of interest to the medical profession was the election of Mr. H. Gilbert Barling to the Vice-Chancellorship. The death of the late Vice-Chancellor, Alderman Beale, was a great loss to the University, for he was a man with unusual powers, a wide experience of affairs, and a judicial mind, who had steered the University safely through its early difficulties. He was therefore a difficult man to follow. Mr. Barling has high qualifications for the post. He took an active part in the transformation of the old Mason College and the foundation of the University. As a teacher in several capacities, an active hospital surgeon, and a member of the University Council, he has served a long apprenticeship to the post, and will bring to it a trained scientific mind and academic knowledge as well as a knowledge of men and affairs. The report of the council mainly dealt with finance, but there are several interesting statements. The colliery owners of the South Midland district have presented £500 annually to be applied to the study and prevention of mine disasters. The money will be spent partly on a stipend for a lecturer and partly on travelling expenses to nine rescue stations and on apparatus. An important arrangement has been made with the Board of Agriculture for carrying on research bearing upon agricultural zoology, from which much is expected.

The Insurance Act.

There are in Birmingham about a quarter of a million insured persons, and by now the great majority have chosen their doctors. As in other places, they are very unevenly divided among the various practitioners. One practitioner has registered nearly 4000 and two others have more than 3000. Careful observations of the proportion the number of actual patients treated bears to the number of members enrolled have been made in certain quarters, and the experience of the first month has yielded a percentage of from 17 to 20. A local Pharmacopœia has been prepared containing 120 items, and the prescribing and dispensing appear to be working smoothly. At a mass meeting of chemists presided over by Mr. J. Radford, President of the Midland Pharmaceutical Association, an address was given by Mr. Nethercoat, who said that for the first time the Act gave official recognition to pharmacists, and that was going a long way towards the ideal for which they had been working during the 70 years' existence of the society. 93 per cent. of all pharmacists who were entitled to go on the panels had agreed to serve, and the remainder supported the principle on which the tariff was fixed. They had got State recognition of the registered chemist as the dispenser of medical prescriptions. He thought the change would improve the relations between the medical profession and the pharmacist.

Death of Sir Thomas Chavasse.

The death of Sir Thomas Chavasse, the senior surgeon to the Birmingham General Hospital, removes a very familiar figure from medical circles in the city. A man of high principles and distinguished attainments, his unexpected death will be deplored by a very large circle.

Feb. 18th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Watching the Dead.

"GWYLNÔS"—literally watch-night—a still surviving custom in some parts of Wales, has recently come in for a considerable amount of condemnation at the hands of those who are responsible for the health of the country. It has been said, quite justly, that for several persons to congregate in a small, probably very ill-ventilated, apartment in company with a dead body can hardly be wholesome, and speedy ill-results may follow when the body is that of one who has died of an infectious complaint. Efforts are accordingly being made to put an end to the custom, concerning the origin of which there is some difference of opinion. One view is that the object of the watching was to prevent the body being taken away by body-snatchers for the purpose of dissection in the medical schools. It appears probable, however, that the custom is much more ancient than the period of body-snatching, and is a survival of the practice once prevalent in Roman Catholic countries of carefully watching the bodies of the dead prior to burial. Whatever be its origin, in the interests of public health the custom should now be no longer permitted.

Cardiff Medical School.

The Cardiff Medical School since its establishment has been housed in the old infirmary buildings in Newport-road, and almost within a stone's throw of the present King Edward VII. Hospital. From time to time extensions have been made by erecting iron and wooden buildings, but it has long been recognised that the accommodation is altogether inadequate for the needs of the school. When designing the new University College buildings in Cathays Park the medical school was provided for, but as the college buildings are being put up piecemeal it was realised that it would be some time before the medical school could give up occupation of the present buildings. In order to put an end to the existing unsatisfactory conditions, and also with a

view of providing special facilities for research work, Mr. W. J. Thomas, a colliery proprietor in the Rhondda valleys, offered to the college authorities 10,000 guineas for the purpose of erecting suitable buildings on the Newport-road site, and he has recently increased this sum to £12,750. The objections to retaining the present site for a medical school are partly sentimental and partly practical. The college authorities are very anxious that the whole of the college buildings should be grouped together in Cathays Park, and, as Principal E. H. Griffiths has pointed out, a medical school in Newport-road would conflict with the ideal of the college as an entity which is so important a consideration in university life. From the practical point of view the upkeep of a separate establishment would involve additional expenditure of possibly £1000 annually. On the other hand, it is important that the medical school should not be too far from the hospital, and in this respect Cathays Park is at a considerable disadvantage compared with Newport-road. Sir Isambard Owen has advised very strongly that the offer of Mr. Thomas should be accepted and the Newport-road site utilised, and at the last meeting of the council of the college it was decided to follow his advice and to proceed with the erection of the new buildings.

Sanatorium Benefit in Wales.

The National Insurance Act provides that the Welsh Insurance Commissioners, and not the Local Government Board as is the case in England, shall control the distribution of all moneys available under the Act for the purpose of providing or making grants in aid of sanatoriums and other institutions. The Commissioners have sanctioned the arrangement which has been arrived at between the Welsh National Memorial and the county councils of Wales and Monmouthshire whereby the administration of the sanatorium benefits shall be in the hands of the memorial, the county councils agreeing to make contributions, if required, to the amount of a sum equal to a rate of ½*d.* in the £. With a view to arriving at some general agreement a conference was recently held at Llandrindod Wells between the Welsh Commissioners and representatives of the county councils, including the county medical officers of health, when Dr. H. Meredith Richards, the vice-chairman of the Commissioners, pointed out that many preventive measures, such as house-to-house inspection, supervision of food supplies, and general sanitary supervision, were incumbent on all local sanitary authorities irrespective of the presence or absence of tuberculosis, though these obligations became more insistent in the actual presence of the disease. One of the most important matters considered at the conference was the relation of the tuberculosis officers to the county medical officer of health, concerning which it is probable that some difficulties may arise, for with only one or two exceptions the county medical officers of health in the Principality were not at all anxious to have the administration of sanatorium benefits placed in the hands of the National Memorial, foreseeing that certain administrative difficulties were very likely to arise. The practical outcome of the conference was a decision to carry on the tuberculosis campaign on broad national lines and not in piecemeal fashion, county by county or borough by borough. Having this decision in mind, the Cardiff corporation has decided to work in coöperation with the National Memorial, although the health committee had previously advised that a separate organisation would best meet the needs of the town.

Medical Treatment of the Uninsured in Cardiff.

The medical practitioners of Cardiff have expressed their willingness to attend the uninsured members of friendly societies, except juveniles, at 8*s.* 6*d.* per member per annum, including the supply of medicines and the giving of certificates. The societies, however, have not agreed to these terms and are desirous of paying 6*s.* 6*d.* per annum for each uninsured member, including those over 65 years of age and permanent sick members, who are in receipt of an income not exceeding 45*s.* per week. They agreed to pay 8*s.* 6*d.* per annum for all new entrants irrespective of age and income, and for those receiving an income over 45*s.* per week, and suggested 4*s.* 4*d.* per annum for the juvenile members of the societies.

Feb. 15th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

National Health Insurance in Edinburgh.

AT a meeting of the Local Insurance Committee held on Feb. 11th the applications of insured persons wishing to make their own arrangements under the Act were considered. It is understood that these were very numerous in the Edinburgh area. It was agreed to withhold permission of this sort from all except those falling under the following heads: (1) Insured persons at present ill and under the care of a non-panel practitioner; (2) insured persons in the employment of, or resident in the houses of, non-panel practitioners; and (3) insured persons undergoing homœopathic treatment at the hands of a non-panel practitioner of this class. Permission was also given to various medical institutions to make their own arrangements of this sort. This decision practically falls into line with that settled for the Lothians and surrounding counties by their respective committees.

Presentation Portrait of Sir William Turner.

On Feb. 14th Mr. A. J. Balfour, as Chancellor, accepted, on behalf of the University of Edinburgh, a portrait of Sir William Turner, subscribed for by students and friends in all parts of the world in appreciation of his sixty years' service successively as demonstrator, professor, and principal of the university. Sir Robert Finlay, M.P., made the presentation on behalf of the subscribers, and Mr. Balfour, in accepting custody, paid a high tribute to Sir William Turner, and touched upon the great academic change which had taken place contingent upon the successful effort to make the modern university keep pace with modern needs. The portrait, which is the work of Sir James Guthrie, P.R.S.A., is of three-quarter length, and is an admirable likeness in every way.

Edinburgh Royal Medical Society.

This society held its annual dinner on the evening of Feb. 11th, under the chairmanship of Dr. R. Murray Lyon, senior president, in the society's hall. Mr. W. Arbuthnot Lane, who earlier in the day had delivered a lecture under the auspices of the surgery department on "Intestinal Stasis," was the guest of the evening. There was a full attendance of Fellows and Members, and the speeches fell no whit short of the high level usually attained at this function.

Glasgow Slums and the Medical Faculty.

The treatment of consumption and the housing question in Glasgow formed the basis of a number of resolutions passed recently by the Royal Faculty of Physicians and Surgeons of Glasgow, and submitted by a deputation from that body before the corporation at a sederunt last week. The deputation was headed by the President, Dr. James A. Adams, who said they were present in no carping spirit, but rather to try to support the council in the efforts they were making to deal with very important health subjects. If slum properties were swept away their value would be returned a hundredfold to the community in better health. Professor J. Glaister submitted the first two of four resolutions. These were:—

1. That the Faculty have learned with satisfaction of the action already taken by the corporation of Glasgow in closing houses and tenements in the slums of Glasgow which are the breeding places of consumption, and while appreciating the difficulties in achieving rapidly the end in view, would urge the corporation to prosecute the same with vigour in the best interests of the citizens of Glasgow; and also to provide for the housing of the displaced families.

2. The Faculty are also of opinion that the corporation of Glasgow should provide suitable accommodation for the more advanced and incurable cases of consumption, these being probably the most active sources of infection.

Speaking to the second resolution Professor Glaister said there were bound to be advanced cases of consumption living under conditions which were entirely inimical, and there was a section of the Public Health Act which stated that such persons without proper lodgings must be provided for by the municipality. They knew from medical experience that the disease was spreading through imperfect housing conditions, and his opinion was that in very advanced and incurable cases patients might have accommodation in which they could die in comfort. Dr. Ebenezer Duncan submitted the latter two of the four resolutions. These were:—

3. That in view of the rapidly accumulating experience regarding the disheartening results which follow the return of sanatorium

patients to their own surroundings when these are unsuitable, the Faculty would suggest that the corporation should provide houses structurally adapted for the home treatment of consumption.

4. That owing to the uncleanly condition of the houses of the poorer classes owners should be encouraged to provide caretakers in order to improve the standard of living.

Dr. Duncan spoke of the urgent need for dealing with the matter, explaining that the question of consumption was largely that of housing also. While great progress had been made, there still remained an enormous amount of consumption, and in Glasgow there were 2000 deaths from tuberculosis per annum. Speaking from his experience of sanatoriums, patients were dismissed with the disease arrested, but were unable from home conditions to continue the treatment when dismissed. They went back, in fact, to unsuitable surroundings and invariably died. All they did by sanatorium treatment to the slum dweller was to prolong the agony; thus the case of the poor consumptive was simply a tragedy from beginning to end. The atmosphere of such houses in some cases was appalling. The people lived in dirt and distress, and in his opinion it was time the council should provide sufficient accommodation for the partially cured coming from sanatoriums. The Lord Provost, in promising consideration of the points laid before the council, said the corporation were at least dealing with one of the questions raised. Plans had already been approved in connexion with the second resolution, and these were before the Local Government Board at present.

Medical Inspection of School Children in Aberdeenshire.

The second annual report on the medical inspection of schools and of school children within the county of Aberdeen for the year ending June, 1912, has been issued by Dr. Patrick Nicol, chief school medical officer. From this it appears that, with an approximate school child population of 34,000 in the county, 15,876 were examined. Of these, 5·54 per cent. showed defective nutrition, the conditions causing which were found to be under- and improper feeding and defective assimilation of food. Sometimes small wages and large families or prolonged illness of a parent caused the defective nutrition, and the increasing disposition to substitute bread and tea for porridge as breakfast. A considerable number of children, except for their Sunday dinner, subsisted on bread and tea only. Many children also had no appetite for breakfast, and left home with empty stomachs. The bad state of some of the children's teeth accounted for much of the defective assimilation, and the habit of sleeping in badly ventilated rooms was sufficient to account in most instances for the inability to take breakfast. In this connexion Dr. Nicol recommends that in many of the schools hot mid-day meals should be supplied. Where such meals were established the results were extremely satisfactory, and the teachers noticed the improvement in appearance and progress of the children. Eighty-five schools supplied a mid-day meal. In 51 cases the meal consisted of hot soup and in 34 of hot cocoa. In nearly all cases the children brought their own bread. In 31 cases the meal was supplied free, and in 49 cases the parents of all the children partaking of the meal subscribed towards it, while in five cases the meal was free to necessitous children only. The last arrangement was, in the opinion of the school medical officers, most satisfactory, in that it benefited the class of children generally found to be under-nourished. The number of insufficiently clad children was at the rate of 0·28 per cent.; but on the other hand the number of over-clad children was at the rate of 40 per cent. of the children examined. As many as 11 layers of clothing were found in several cases, and in one case 13 layers were found. The number of children with dirty clothing was 0·8 per cent. only, the cleanliness of the majority not being confined to the seasons when parents were warned of the medical officer's visit, but being found also when surprise visits were paid. It is the general custom throughout the county for children to sleep in their day underclothing. Fifty children were defectively shod. While, owing to the severity of the winters and for economical reasons, children should have substantial boots, many of the heavy types weighed between 6 and 7 pounds per pair. Such boots necessarily impair the movements of the legs, and account for many of the awkward gaits seen in country children and adults. In summer time boots might be discarded with advantage, so that cramped feet might have a chance to regain their normal form. The percentage of children with verminous bodies was higher than last year. The cause lay in the condition of the homes of the affected children, and until steps were taken to cleanse these homes very little progress could be made.

Royal Infirmary, Perth: the New Building.

The annual meeting of subscribers to the Perth Royal Infirmary was held on Feb. 11th. The directors in their report state that satisfactory progress is being made with the building of the new infirmary. The estimated cost for the new institution was close on £40,000, and the whole of that sum, with the exception of £1632, had been subscribed. Thanks to the liberality of friends the directors had been able to proceed with the erection of the children's ward on a much larger scale than was originally intended. The movement was initiated as a memorial to King Edward VII. The total number of cases treated in all departments was 3281, 586 fewer than in 1911. The ordinary income for the year amounted to £4210, and there was a deficiency of £411 on the year's working. The directors state that the provisions of the National Insurance Act will in no way restrict the work of the institution, and appeal to the public to continue and even to increase their contributions.

Cults, Aberdeenshire, Convalescent Hospital.

During the year 189 patients resided for an average length of visit of 37 days in the convalescent hospital. The total income, including £60 in legacies, amounted to £320 17*s.* 11*d.*; the ordinary expenditure exceeded this by £409 4*s.* 9*d.* To this had to be added a sum of £110 3*s.* incurred in drainage, making the total deficit for the year £519 7*s.* 9*d.* For several years these deficits have been accumulating, and the hospital now stands indebted to the extent of £1558 4*s.* 5*d.* The interest payable on this alone constitutes a serious drain on the finances of the institution. The directors regret that no response has been made to repeated appeals, and feel that the time has now come when the question of restricting the number of patients must be faced.

Feb. 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and Medical Benefit: The Friendly Societies' Terms.

THE Friendly Societies, with an unexpected frankness, have made known the conditions on which they wish to have the medical benefit of the National Insurance Act applied to Ireland. At a meeting of the Dublin Friendly Societies Union last week the president, Mr. J. D. Nugent, declared that certain points must be settled before they would agree to the benefit being applied to Ireland. The most important of these were—(1) that the societies, and not the Insurance Committees, must have the control of the medical practitioners, and (2) that the benefit must include attendance on the wife and dependents of insured persons. He also demanded that the entire sum at present spent in Poor-law medical relief, some £197,068, should be made available for the administration of the medical benefit. On the first point the societies may count on the uncompromising resistance of the medical profession. It is unlikely, indeed, that any medical man could be found to work under the Act if the administration of the benefit is to be in the hands of the societies.

The Attitude of the Medical Profession.

A meeting of medical men was held recently in the Medical Institute, Belfast, for the purpose of considering what evidence the profession should be in a position to give to the Commission which has been appointed to inquire into "the advisability of applying to Ireland the provisions of the National Insurance Act of 1911, with reference to medical benefit." There was a very large attendance, Sir John Byers, chairman of the Local Medical Committee, presiding. After a report had been received from a special subcommittee appointed to deal with the matter, it was decided to recommend that medical benefit should, in the opinion of those present, be extended to Ireland, provided the conditions were not less favourable than in England. With reference to the suggestion that medical benefit in Ireland should include attendance on the families of the insured, it was decided that attendance on the families should not be included in capitation rates in urban districts with a population of 10,000 and

upwards, but that if the Government insisted that in Ireland medical benefit should carry with it attendance on the families of the insured a flat rate of 1 guinea per insured person must be paid. The meeting selected the following to give evidence before the Commission, which is to sit in Belfast in March: Dr. R. J. Johnstone, Mr. S. B. Coates, Mr. J. Macintosh, Dr. G. Elliott, and Mr. John O'Doherty. At a meeting of the conjoint committee of the Irish Medical and the British Medical Associations held in Dublin on Feb. 14th it was decided to give evidence at the Commission, and to object to the principle of attending the dependents of the insured unless at a proper rate, which it was thought should not be less than 1 guinea per year per family. The Commission, which was to have held its first meetings this week, has postponed them until early in March, and it is said a scheme is being, in the meantime, worked out which will include in Ireland for medical benefit not only the insured, but their wives (if not insured) and families (dependents). The idea is, in urban districts, to strike a flat rate for each insured person to cover his or her dependents, while in the rural areas medical men will be paid a salary of from £250 to £300 per annum for the same form of attendance, which would in many places go to the dispensary doctors, who would do this insurance work in addition to their Poor-law duties. The real crux is what payment will be offered the medical men attending the insured with their families included in the Irish towns. The sum talked of by those in touch with the Commission is preposterous—8*s.* 6*d.*—and will be strongly opposed by the medical profession, but whether their views will carry much weight is very doubtful, as an attempt is being made to limit the medical evidence; while, on the other hand, the Friendly Societies are being invited to put forward their views at the Commission. The outlook in Ireland is far from being rosy.

Maternity Benefit.

At the Dungannon board of guardians on Feb. 14th a letter from the Irish Local Government Board to the guardians was read, advising care in issuing "red" tickets (requiring compulsory attendance on the part of the dispensary practitioner) in the case of insured women entitled to maternity benefit, inasmuch as they were not all "poor" cases, but, on the other hand, pointing out that there might be exceptional cases in which for various reasons the relieving officers should issue the "red lines." It was decided to take no action in the matter, one of the guardians remarking that the maternity benefit had been decided to be entirely for the comfort and support of women, and not a penny should be expended on the doctors. As a guardian he would take the responsibility of granting a red ticket in any case where, although a person was insured, the circumstances demanded the 30*s.* for support.

The Treatment of Pulmonary Tuberculosis by Inoculation.

An inquiry was made by the Belfast board of guardians as to whether there had been any favourable results from the treatment of pulmonary tuberculosis at the Abbey Sanatorium, Belfast, by the more expensive drugs, which had largely added to the medicine bill for the half year ended Sept. 30th last, the two medical visiting officers of that institution, Mr. Robert Hall and Dr. J. C. Rankin, have issued a report in which they state that up to the end of September, 1912, they used dioradin (radio-active menthol iodine), pneumosan, tuberculin, and formaldehyde, but that since September they have used only the latter two preparations. In nine months they gave dioradin by inoculation 502 times, pneumosan 279, and tuberculin 954 times, making a total of 1735 inoculations, which represents a great deal of work. They think, as regards dioradin and pneumosan, they got as good results from other lines of treatment at a much less cost, so they have given them up, but they are still employing tuberculin in varying doses. They wisely enforce the well-known fact that good results in the treatment of pulmonary tuberculosis, either at home or in a sanatorium, depend on the power of the patient to combat the disease and its detection in an early stage. Unfortunately, the great majority of cases which come under care at the Abbey Sanatorium, Belfast, are not in the early stage, a circumstance which renders it more difficult to increase the combative power of the individual. Nevertheless, the results of the treatments adopted compare favourably with those of other similar institutions.

Death of Dr. R. G. O'Flaherty, of Kingstown.

The death occurred on Feb. 15th of Dr. Richard George O'Flaherty, for many years medical officer of health of Kingstown. He obtained his medical degrees from Trinity College in 1870, and had practised in Kingstown for over 35 years. He had been incapacitated by illness for the past two years. Until his health broke down he was an enthusiastic and skilful yachtsman.

Feb. 18th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Donations to the Faculty of Medicine.

THE Faculty of Medicine of Paris has been authorised to accept two donations recently offered to it. The first, by Mme. Dieulafoy, consists of two Government bonds of the interest value of 500 francs each, which is to be used to establish two annual scholarships of 500 francs. These scholarships, which are to be named the Georges Dieulafoy Bequest, are to defray the expenses of study, examination, and thesis of two poor French students. The second donation, by Mme. Vivier, is a sum of 28,000 francs, the income of which is to be employed yearly, on the recommendation of the Council of the Faculty of Medicine, either to endow one of the general medical clinics and aid in its development, or to found scholarships or funds for foreign medical missions at such times and in such a manner as may be determined by the Council. This foundation is to bear the name of Dr. Henri Vivier.

The Hygiene of Childhood.

The Director of Public Assistance and Hygiene has notified a steady diminution in the infant mortality. Out of 1000 infants under one year the number of deaths has fallen for the whole of France during the past quinquennium as follows: 135·5 in 1906, 118·7 in 1907, 116·3 in 1908, 105·3 in 1909, and 100·1 in 1910. These results are undoubtedly due to those public and private works, such as crèches, infant consultations, and so many others, which have laboured for the protection of child life. In regard to the *enfants assistés*, it is noted that between 1900 and 1910 their number has risen from 50,734 to 64,773, or an increase of 27 per cent.—a lamentable fact.

The Inferior Stamina of the Male Sex.

Statisticians at present consider it proved that, in the human race, boys die in greater numbers than girls, both during intra-uterine life and afterwards. This fact they explain by a greater fragility of the male sex. M. A. Pinard and M. A. Magnan have endeavoured to appraise the correctness of this view by consulting the documentary evidence afforded by the records of the Clinique Baudelocque, which have been collated from 1891 to 1911. The analysis of these documents, extending over 20 years and comprising 52,689 accouchements, shows the relative mortality to consist of 1952 males and 1576 females. Of these, the number of infants that died between 6 and 11 days after birth was 867 boys and 614 girls. The number that perished during labour was 467 boys and 351 girls. The number of fœtuses that died during gestation was 618 boys and 611 girls. At the Clinique Baudelocque, therefore, many more boys than girls died. But with regard to the fœtuses that died during gestation it is noteworthy that the mortality among boys is hardly in excess of that of girls, so that it is only during and after birth that more boys die. M. Pinard and M. Magnan, seeking the cause of this fact, claim to have found it in the relative weights of the fœtus. Boys are heavier than girls, and this difference in weight is sufficient to explain the greater mortality among boys, for they undergo in consequence thereof greater compression in their passage through the genital canal, and therefore resist it less well.

The Commission on Medical Teaching.

The Superior Commission on Medical Teaching, instituted two years ago at the Ministry of Public Instruction, met on Feb. 13th for the first ordinary session of the year. The conditions for the professorship in medicine formed the first

subject discussed. On this question opinion was sharply divided. Some speakers urged as essential to the making of good professors in medical science the possession of extensive theoretical knowledge. This view was ably championed by Professor Weiss and Dr. Lucas-Championnière. Other speakers, on the contrary, among whom was Professor Widal, held that in the professors of the future practical teaching and personal research should have pre-eminence over theoretical knowledge, and this opinion was largely supported. During the session the new statute concerning the matter was voted on. The principal reform effected is that whereas at present the test of admissibility to the "aggrégation" being essentially theoretical, the unfortunate successful candidates who fail to secure a post are compelled to continue to devote themselves to these theoretical studies, in future the admissibility will remain valid for nine years, so that a candidate who has once been declared eligible will be released from further theoretical tests, and will thus be able to continue his personal researches. The plan voted by the Superior Commission aims principally to favour specialisation among the new *agrégés*, in order that all branches of medical teaching shall henceforth be taught in the faculties and schools of medicine, which has not hitherto been the case. Finally, it was voted to obtain public powers for higher grants in favour of laboratories.

Feb. 17th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Public Health Statistics.

AT a recent meeting of the officers of public health in Vienna a preliminary report dealing with the health statistics for 1912 was read by Dr. Böhm, the President of the Board of Health. The figures relating to the mortality show the remarkable and unexpected fact that during that year Vienna had the lowest death-rate amongst all the European capitals, the computed proportion being 14·06 per 1000. There died altogether 32,131 persons in 1912, as compared with 33,684 in 1911 (14·06 as compared with 15·68 per 1000), whilst ten years ago the corresponding ratio was 17·89 per 1000. In this reduction of the death-rate the various fatal diseases participate in an unequal degree, all diseases incidental to infancy and childhood having become less frequent, whilst those incidental to middle life, and especially to old age, have increased markedly. This is illustrated by the fact that ten years ago there died 8880 children under one year of age and 7281 persons older than 60 years, whereas in 1912 there died 5922 children under one year of age and 9568 persons over 60 years. Of the latter category 1434 were over 80 years, as compared with 1180 in the year 1903. This shows a direct reversal of the conditions. As regards the causes of death, the following figures are interesting. Tuberculosis last year claimed 6298 victims, as compared with 7748 during the similar period ten years ago. For the same two periods other diseases of the respiratory tract caused 4174 deaths, as compared with 5290, and diseases of the alimentary tract caused 2911 cases, as compared with 3865; an increase was noted, however, in fatal diseases of the circulatory system—namely, 4835, as compared with 3302, and in deaths from malignant affections 2753, as compared with 2157. The facts may be summarised in the remark that accidental preventable diseases have gone down in numbers, whilst diseases due to exhaustion of vital force (arterio-sclerosis, degeneration of the myocardium, and cancer) have increased. A consideration of the figures leads to the welcome conclusion that the average duration of life of the deceased persons was much higher than previously, but it also shows that the decrease of births is as well marked in Vienna as in all other civilised countries of Europe. In Vienna only 40 503 living children were born last year, against 45,830 in 1903 and 50,327 in 1893. Thus at least 100,000 living children were born less in the last decade than in the previous one. A continuation of this decline must inevitably result in the number of the population becoming stationary or even diminishing. The hygienic measures which have improved the bulk of the population have considerably narrowed the field of activity of the general practitioner, but on the other hand this loss of income is more than counterbalanced by the new openings for medical work created in connexion with the prevention of disease both in the homes of the people and in industrial establishments, the care of infants, and the protection of children.

Professor Chiari's Birthday.

The well-known rhino-laryngologist, Professor Otto Chiari, recently celebrated the anniversary of his sixtieth birthday, and on this occasion he was the recipient of many compliments and congratulations. His pupils published a Festschrift, containing a number of interesting articles by the most prominent of his previous assistants. He was also entertained at a banquet which was attended by representatives of many foreign nationalities, including English and American societies, and the Vienna Laryngological Society held a special meeting for the purpose of doing honour to its president.

Students' Protest against Recent Modifications in the Medical Curriculum.

Some time ago a new order of studies was established at the University of Vienna, its effect as regards the medical classes being that, after having worked for three semesters (or half-year terms) at the University, the student has to pass four preliminary *viva voce* examinations on biology and a practical examination on anatomy within 12 weeks, whereas previously to the new order coming into force these could be passed in the course of the fourth and fifth semester. Students who do not pass them within the 12 weeks will not be allowed to proceed to clinical study in the wards. These regulations are open to the objection that they might possibly deprive a student of one semester and cause him to lose any scholarships which he might possess. The medical students have therefore taken action of the nature of a protest against them, sending petitions to the dean of the Medical Faculty and to the rector, asking for either a lenient application of the new regulations or the restoration of those which they have superseded.

Feb. 17th.

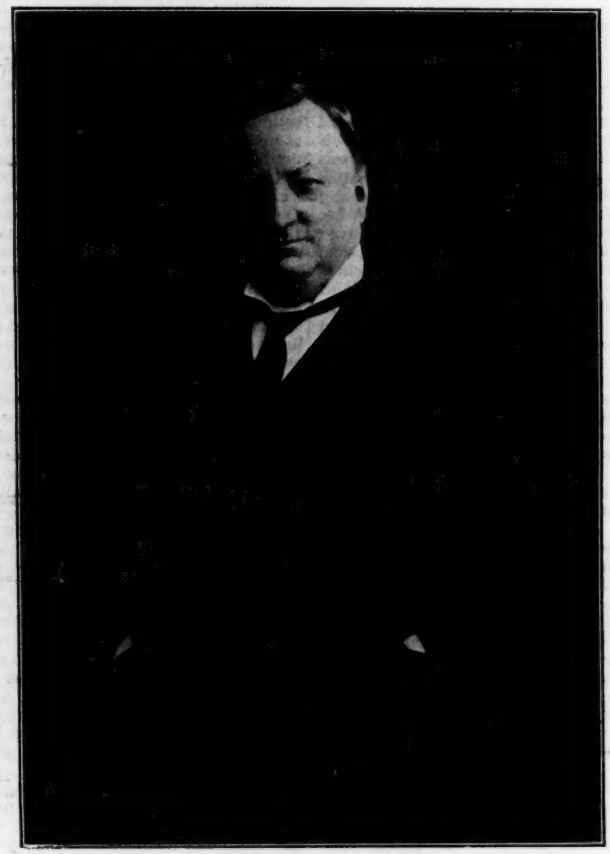
REMEDIABLE DEFECTS IN CHILDREN OF SCHOOL AGE.—The mid-session address before the Nottingham Medico-Chirurgical Society was delivered on Feb. 5th by Dr. Mary Thorne, who took the Remedial Defects in Children of School Age as her subject. She said that medical inspection had been carried on in schools now for ten years; this had taught us that healthy bodies and healthy minds can only come from healthy parents and healthy surroundings. More attention should be paid to the daily functions of the body, and in order to secure this there should be sufficient and decent lavatory accommodation in every school, and children should be allowed to leave the class if necessary. If these functions are neglected constipation inevitably arises, followed by anæmia, indigestion, and dysmenorrhœa. Fortunately, there is a steady improvement in the lavatory accommodation. All girls should have plenty of active movement in the open air, but not in competitive games; the latter are a mistake for girls of 13 to 16 years. Curiously enough, town children have better playgrounds than village children. The lecturer then briefly dealt with posture curves, flat feet, desk accommodation, and the position of the windows in the classroom. The light should always come over the left shoulder. The teeth were too often neglected, and all second dentition teeth should be stopped on the first sign of decay. The children should clean their teeth at least every night. The importance of clean heads was being instilled into the parents, because they found the children were refused by the factory surgeons if their heads were verminous. A very large number of blind and deaf children owed their afflictions directly to the sins of their parents. Heredity was also the largest factor in the causation of mental deficiency. Thus it became the duty of doctors to impress upon parents, teachers, clergy, and others, the great importance from a medical point of view of encouraging a moral life. Finally, the lecturer deplored the present system of class teaching as opposed to individual teaching; 5 per cent. of the children leave school without being able to read and write sufficiently well to be of any practical use. There should be a simpler code of instruction; little should be taught, but that little should be well taught.

Obituary.

MALCOLM MACDONALD McHARDY, F.R.C.S. EDIN., M.R.C.S. ENG.,

LATE PROFESSOR OF OPHTHALMOLOGY AT KING'S COLLEGE, LONDON; SENIOR OPHTHALMIC SURGEON TO KING'S COLLEGE HOSPITAL, AND CONSULTING SURGEON TO THE ROYAL EYE HOSPITAL.

Malcolm Macdonald McHardy, for many years professor of ophthalmology in, and surgeon to, King's College Hospital, London, was the sixth son of Admiral J. B. B. McHardy by Horatia, daughter of Admiral Pascoe, and grandson of Nelson's famous flag-lieutenant. He was born at Springfield, near Chelmsford, Essex, on March 15th, 1852, and received his early education at the Royal Naval School, which was formerly at New Cross, and afterwards removed to Eltham in Kent. He early showed that he inherited his father's magnificent energy and physique and passionate love of the sea, and he often used to say that but for his mother he would have gone into the Navy, whilst his father wished him to be an engineer. At the age of 17 he was entered at St. George's Hospital as a medical student, and from that time forward entirely supported himself by working as an assistant to private doctors by night and studying as much as he could by day, he being so self-reliant that he entirely refused help from his father, who had others more needy of aid and far less capable of fighting their way in the world than he. He qualified as M.R.C.S. Eng. in 1873 and F.R.C.S. Edin. in 1877, and was assistant house surgeon at Leicester Infirmary, ophthalmic assistant and ophthalmic registrar to St. George's Hospital, London, surgical registrar to Charing Cross Hospital, house surgeon to the Belgrave Hospital for Children. He went for one or two voyages in the old sailing ship *Kong Sverre*, and in 1878 became honorary surgeon to the Royal Eye Hospital, Southwark, which institution he was the chief means of rebuilding and bringing up to its present high state of efficiency, and in 1880 he was elected professor of ophthalmic surgery to King's College. He edited the fourth edition of "Wells on Diseases of the Eye," with an original ophthalmoscopic atlas; and contributed several practical papers on general surgical subjects to St. George's Hospital Reports before he exclusively devoted his attention to ophthalmology. Among his many writings on eyework the most important were "On the Prognosis of Albuminuric Retinitis," on "Localised Tuberculosis of the Choroid," "A Case of Double Black Cataract," and "On the Operative Treatment of Immature Senile Cataract and its Artificial Ripening by Trituration." But his chief accomplishment was the invention in 1882 of the self-registering perimeter, an account of which was published in the *Ophthalmic Review* for that year. This was a genuine boon to the profession, and was met with universal approval all the world over. The invention of this instrument brought him not only fame, but many friends, especially from Germany and America. It is a remarkable testimony to the thoroughness of McHardy's perimeter that in an age when mechanical science has been so progressive, yet for the last 30 years no improvement has been made in it, nor has it been superseded. But all who ever saw McHardy operate or demonstrate cases were always struck with his essentially practical nature and the mechanical bent of his mind. He was an extremely dexterous operator upon the eyeball. His incisions were precise, beautifully even and neat, and so gently made that little, if any, reaction followed, except in the most diseased eyeballs. He had hands as steady as it is possible to imagine, and his operations in the most difficult cases of glaucoma, when the anterior chamber was practically abolished, were most beautiful to watch. He was always an advocate of operation in primary simple glaucoma, and generally endeavoured to obtain a cystoid cicatrix at one angle of the wound by drawing up a strand of iris tissue free from pigment, beneath the conjunctival flap. This he was doing in the early nineties with considerable success.



MALCOLM MACDONALD McHARDY, F.R.C.S. EDIN., M.R.C.S. ENG.
(From a photograph by Frederick MacFadyen, Cliftonville, Margate.)

McHardy was a man of striking physique, being a first-class heavy-weight boxer and a good all-round athlete; but his commanding and domineering personalities brought him as many enemies as his good qualities brought him friends. All admired his honesty and ability, but his forcible nature and unconventional language made many dislike him. With hospital work he was particularly in his element, and his devotion to duty may be testified to by the fact that he would be seeing patients from 3 in the afternoon till 8 and 9 at night, and his notes were always very precise and accurate. His out-patients loved him and would wait hours to see him; while he, being a most versatile man, knew something of most of their trades and occupations, which, coupled with his breezy, genial nature, and thorough examination of their case, endeared him to them all. McHardy died at Dumfries, N.B., on Feb. 8th, aged 60.

The funeral took place at Dumfries. The staff of King's College Hospital was represented by Mr. L. V. Cargill, the senior ophthalmic surgeon; whilst the council of

the Royal Eye Hospital was represented by the secretary, Mr. Edwin Easton. A memorial service was held in King's College Hospital Chapel at the same time that the funeral was taking place.

EDWARD ADRIAN WILSON, M.B. CANTAB.

WHEN the whole of the grim and glorious tragedy of the Scott expedition is made public we shall beyond doubt learn more of the last few weeks of the life of Edward Adrian Wilson than is as yet known. But it does not need any message from the South to appraise a career which even the annals of medicine have seldom paralleled. The spontaneous tributes of admiration which his death has called forth from men whose opinions count leave a vivid impression of manly courage and loftiness of character far rarer and more precious than academic distinctions or material successes. To assess his heroism on a level with that of Scott himself and of the no less immortal Oates is an act of simple justice quite apart from the bond of their union in death.

Wilson was educated at Cheltenham College, whence he entered at Caius College, Cambridge. He obtained a first-class in the Natural Science Tripos of 1894, and proceeded to St. George's Hospital for his clinical studies. He took his degree of Bachelor of Medicine at Cambridge, but was attacked by tuberculosis and had to spend a considerable time abroad. Such a misfortune would have dimmed any ordinary man's enthusiasm for hardships and dangers, but discouragement and disaster were obstacles which served merely to call up Wilson's reserves of moral and physical courage. Although not completely recovered, he joined Captain Scott's Antarctic expedition of 1901 in the conjoint capacity of surgeon, zoologist, and water-colour artist. In all three rôles he soon proved himself invaluable, and Captain Scott speedily recognised the mettle of his subordinate. When the dash for the South was made, Shackleton and Wilson were the two whom Scott selected to accompany him in the (then) Furthest South sledging trip. The way in which his endurance stood the strain was a good testimonial to the excellence of a cold dry climate for those in whom the bacillus of tubercle has found a temporary lodging. Over and over again in his book Scott spoke in terms of enthusiasm of Wilson's work and worth, and the latter's special selection for Scott's second expedition speaks for itself.

Dr. Wilson's water-colours of Polar scenery were soon the talk of the town when the expedition returned, but among experts his zoological studies were even more highly valued, and his help in the arrangement and description of his collection was greatly appreciated by the officials of the Natural History Museum. In 1905 he worked on the Departmental inquiry into the diseases of grouse, earning the same admiration from his fellow workers as he did in other spheres. As a lecturer he excelled also. By special permission of Captain Scott the limit of one year from the return of the expedition within which none of the members might lecture or publish on their experiences was released in order that Wilson might address the Hunterian Society of St. George's Hospital. As far as the medical side of the lecture was concerned, the most memorable point which impressed itself on the present writer was Wilson's assertion that lime-juice and vegetables neither prevent nor cure scurvy, but that fresh meat does so—a novel observation which he put to the test a few years later and confirmed. But an abiding impression was left of a singularly fascinating character, of a fine gift of exposition, and of a modest, loyal, and high-minded gentleman. In lines which might have been written with especial reference to Wilson, Kipling has sung of the man who—

> ..... can meet with Triumph and Disaster,
> And treat those two impostors just the same.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Kothe, of Friedrichroda, Thuringia, Medical Privy Councillor of the Grand Duchy of Saxe-Coburg-Gotha.—Dr. W. Mitlacher, extraordinary professor of pharmacognosis in the University of Vienna.—Dr. Ludwig Lantschner, the Nestor of Tyrolean medical men, aged 86. He had been professor in Innsbruck, and had actually carried on practice until a few days before his death.

THE NATIONAL INSURANCE ACT.

THE CLERICAL WORK AND OTHER MATTERS AFFECTING MEDICAL PRACTITIONERS IN CONNEXION WITH MEDICAL BENEFIT.

THE Insurance Commissioners announce that they have given careful consideration to the subject of the clerical work required from medical practitioners in connexion with the administration of medical benefit, as to which they have received many suggestions from practitioners on the panels, based on their personal experience.

On Feb. 4th the Commission received a deputation from the National Insurance Practitioners' Association, who submitted the results of inquiries which that Association had made among medical men engaged in the work. The deputation urged that the forms of records should be simplified, and stated that, so far as they could ascertain, a card system for the keeping of records would be generally preferred by the profession to the day-book at present in use, or indeed to any record in book form. Amendments in the prescription form were suggested, and the deputation pressed for the substitution of duplicate, or even single, forms for the triplicates at present in use. They urged that the practitioner should not be required to furnish to the patient a copy of the prescription for retention by the chemist (in addition to the one which the chemist would send to the Insurance Committee as a voucher for payment), and that it should be left to the practitioner's own discretion whether he should retain a copy for his own use. The deputation raised questions also as to the methods to be adopted for allocation of insured persons among practitioners on the panel, the possibility of Insurance Committees making payments on account before the end of the quarter to practitioners in respect of insured persons already on their list, and the simplification of the forms of certificates required by some Approved Societies in connexion with the administration of sickness benefit.

These subjects were further considered at a conference held by the Insurance Commissioners at the Civil Service Commission on Feb. 11th, to which every Local Medical Committee recognised by the Commissioners under Section 62 of the Act, and also every committee which had applied for recognition, had been invited to send a representative. About 80 were present.

The first subject discussed was the procedure and forms in connexion with the acceptance of an insured person by a doctor for inclusion in his list. It was stated on behalf of the Commissioners that there would not be another general issue of the red tickets, the use of which was a temporary measure required by the special circumstances incidental to the bringing into operation of medical benefit on Jan. 15th. The only clerical work required of a practitioner in future in connexion with the acceptance of an insured person on his list would be the filling up of a form of acceptance, and this would not be required in respect of any insured person already accepted by him. In other words, after the completion of the first general assignment, the filling up of forms of acceptance will only be necessary in the case of insured persons changing from one doctor to another, those coming into a district, and those entering for the first time into insurance. It was further stated that each Insurance Committee would send to each practitioner on the panel, in respect of each insured person notified by him as accepted on his list, a card containing that person's name, address, and other particulars. These cards would constitute the doctor's list of the insured persons for the time being recognised by the Committee as under his care. After some discussion, in which some of those attending expressed preference for a single continuous list, it was clear that the proposed card system was preferred by the majority of the Conference.

On the subject of records there were marked differences of opinion. A few favoured the continuance of the present day-book, simplified by the omission of the patient's society and number, and reduced in size, while some urged that the record should be kept in a book retained by the patient, which he should produce each time he was attended by the doctor. It was clear, however, that a large majority considered a card system the best. A form of card was placed before the conference, and was generally approved subject to modifications in detail. Some speakers urged that the records should be confined to those cases in which sick pay was received,

but the preponderating feeling was in favour of such records as were required being obtained in respect of all cases treated. Objections were raised to the triplicate prescription form and also to the requirement that drugs not included in the list adopted by the Committee must be ordered on a special form. On the former subject the Commissioners stated that they had decided not to require the triplicate, and to leave the keeping of a duplicate to the discretion of the doctor. Note was taken of the suggestion that when a special drug was ordered some distinctive mark might be made on the ordinary form, instead of using a special form. Suggestions were also made for detailed modifications of the prescription forms with a view to the convenience of the prescriber.

In addition to these questions of clerical work members of the Conference were invited to raise any other points to which they desired to draw attention with a view to facilitating the work of practitioners in connexion with medical benefit. Points were brought forward as to the method to be adopted for the distribution of those insured persons who made no choice or were rejected by the doctors of their choice, the method of distribution of the medical benefit fund where a capitation system was adopted, and the grant for mileage. It was explained that the method of distribution of insured persons among the practitioners on the panel was one primarily for consideration by those practitioners themselves, who could draw up a scheme for the purpose. It would be possible, under a scheme approved by them, to permit a medical man to take on his list only a small number of insured persons or to confine his list to persons of a defined class. The Insurance Committee would require to be satisfied that the scheme was such as to secure that every insured person was provided with medical attendance, that an excessive number was not assigned to any one practitioner, and that an insured person was not unreasonably assigned to a practitioner living at a distance from him. It was also explained that the method of distribution of the capitation allowance in cases in which the allocation of insured persons was not completed before the end of the quarter was also a matter for the consideration primarily of the practitioners on the panel, who should make arrangements with the Insurance Committee. Where desired, Insurance Committees would be able to make payments to doctors on account (e.g., at the end of the first month) in respect of the insured persons already accepted on their lists. As to the mileage grant, the Insurance Committees were collecting information as to the cases in their own areas in which special circumstances justifying a claim appeared to exist. The Committees would report to the Commissioners, who would distribute the grant after due consideration of all the claims.

ADMINISTRATION OF SANATORIUM BENEFIT.

A memorandum on the administration of sanatorium benefit in England, Scotland, Ireland, and Wales has been presented to Parliament. It is signed by Mr. C. F. G. Masterman, M.P., Financial Secretary to the Treasury, and is dated Feb. 12th, 1913. Figures are appended showing the operation of sanatorium benefit from July 15th, 1912, when it came into force, until Nov. 20th, 1912, and a brief account is given of the procedure adopted in each of the four countries.

ELECTION OF MEDICAL REPRESENTATIVES UPON INSURANCE COMMITTEES.

Ballot papers for the election of medical representatives on each Insurance Committee in accordance with the Regulations issued by the Commissioners have been posted this week to the practitioners resident in the county for which the election is held whose names appeared in the Medical Register on Jan. 30th, 1913. A medical practitioner can vote in the county or county borough in which his registered address, as shown in the Medical Register on Jan. 30th, 1913, is situated, whether he is still resident at that address or not. But he cannot vote in any other county or county borough even if he is resident in that county or county borough at the present time. The county or county borough for which he can vote is clearly marked upon the ballot paper sent to him.

In order to record an effective vote the medical man must sign the ballot paper in the place set apart for the purpose, and must otherwise attend to the instructions printed upon the ballot paper. Any ballot paper which is sent to the Commissioners without a signature or which is despatched later than to-day (Friday, Feb. 21st) will be disallowed. Postage need not be paid. The elections will be conducted upon the principle of proportional representation.

COUNTY OF LONDON INSURANCE COMMITTEE.

The following are the candidates who have been duly nominated for election as representatives of the medical practitioners on the Insurance Committee for the County of London: Dr. J. J. Atteridge, Dr. S. D. Bhabha, Mr. W. G. Bott, Mr. W. L. Brown, Dr. J. Clarke, Mr. S. H. Curry, Mr. R. Donald, Mr. R. V. Donnellan, Dr. R. Esler, Mr. W. H. P. Fox, Dr. L. Freyberger, Mr. M. Glanville, Dr. C. G. Gooding, Dr. Major Greenwood, Mr. H. Hilliard, Mr. V. A. Jaynes, Mr. Evan Jones, Mr. R. D. MacGregor, Dr. R. Main, Dr. J. Morton, Dr. W. H. Payne, Mr. H. W. Roberts, Dr. A. G. Sandberg, Dr. A. M. R. Sinclair, and Mr. E. B. Turner.

INSURANCE ACT FORMULARIES.

One of the probable results of the Insurance Act appears to be a multiplication of local formularies, similar to the Hospital Pharmacopœias so carefully rescued from their segregated existences and brought together into one volume by Mr. Peter Squire. Already we have before us two such formularies: "A Short Pharmacopœia for the Use of Medical Practitioners Working under the National Insurance Act" (Huntingdon: C. Cooper and Co. 1913. Price 6*d*.), compiled by Dr. C. B. Moss-Blundell, county medical officer for Huntingdonshire; and the "Pharmacopœia of the Leicester Public Medical Service, 1913," published under the authority of the Board of Management. Both are good of their kind. The latter is the fuller, and gives the quantities of the ingredients in both apothecaries' weight and the metric system. The former uses apothecaries' system only, but adds the proper charge therefor, with an eye, we suppose, to the "floating" 6*d*. Comparing some of the more commonly used formulæ we see at once the unsatisfactory consequence. In the mistura ferri aperiens of the Leicester formulary there are 5 grains of ferrous sulphate and 15 grains of magnesium sulphate, with 5 minims of dilute sulphuric acid to the ounce, while the Huntingdonshire formulary contains 4 grains of ferrous sulphate, 40 grains of magnesium sulphate, and 10 minims of dilute sulphuric acid to the ounce. The acid opium mixtures contain respectively 10 minims and 5 minims of tincture of opium, the potassium bromide mixtures respectively 10 and 15 grains of the active drug, and so on. Inasmuch as, we presume, prescriptions will not be retained by the patient in Insurance Act practice no serious mishaps are likely to happen. Still, if it is necessary to resort to ready-made prescriptions it certainly seems as though it would be better to have one formulary for all districts instead of a different formulary for every district, if for no other reason than to guard against different names being given to practically the same prescription. The hospital formularies are largely a survival, brought up to date, of old-time therapeutic methods, out of which the profession was slowly emerging when the Act arrived. The rehabilitation of the system in a scheme for the improved medical care of the poorer classes looks very much like a step backwards into bondage to an official drug therapy; and the economic necessity for it, if it is really necessary, is much to be regretted. Once again serious doubts arise as to the salutary influence of the Act on the practice of medicine.

NINTH CONGRESS OF THE GERMAN RONTGEN SOCIETY.—This Congress will be held in Berlin in the Langenbeckhaus on Sunday, March 30th, 1913, opening at 9 A.M. punctually, but there will be a meeting on the previous evening at 8 P.M. for the demonstration of projections so as to leave the Sunday as free as possible. The date of this Congress has been fixed so that those attending the Orthopædic and Surgical Congresses may have an opportunity to attend this one. Cards of membership may be obtained up to March 15th from Herr Melzer, Berlin N. 24, Ziegelstrasse, 10 and 11. The subscription is M.10. The President for the year 1913 is Dr. M. Immelmann of Berlin (Lützowstrasse, 72).

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians of London held on Jan. 30th, and of the Council of the Royal College of Surgeons of England held on Feb. 13th, diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon 98 candidates (including two ladies—Miss Merlin Kingsley, Calcutta and Manchester Universities, and Miss Minerva Ellen Reid, M.B. Toronto, Toronto University), who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Examining Board, and have complied with the necessary by-laws. The following are the names and schools of the successful candidates:—

Kenneth Blackie Aikman, B.A. Cantab., Cambridge University and University College Hospital; Charles Harry Powell Allen, Madras University and University College Hospital; George Stanley Applegate, Bristol University; Christian Victor Aserappa, D.P.H. Oxon., D.T.M. & H. Cantab., L.M.S. Ceylon, Ceylon Medical College and London Hospital; Stephen Grange Askey, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Mark Avent, B.A. Cantab., Cambridge University and University College Hospital; Gilbert Bailey, Manchester University; John Henry Bennett, King's College and St. George's Hospitals; Paul Theodore Gustave Bergouignan, M.D. Paris, Paris University; Alured Charles Lowther O'Shee Bilderbeck, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Walter Folliot Blandford, B.A. Cantab., Cambridge University and St. George's Hospital; Maurice Frederick Bliss, London Hospital; Ellis Campbell Bowden, London Hospital; Edward John Yelverton Brash, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Robert Traill Brotchie, London Hospital; Herbert Horan Brown, B.A. Cantab., Cambridge and Leeds Universities; Stacey Archer Burn, St. Bartholomew's Hospital; Anthony Clifford Clifford, B.A. Cantab., Cambridge University and Guy's Hospital; Albert George William Compton, Cambridge University and St. Mary's Hospital; William James Cran, M.B., Ch.B. New Zealand, Otago University and St. Bartholomew's Hospital; William Henry Dakin-Smith, University College Hospital; Alfred Beuthin Danby, Guy's Hospital; Francis Eldon Daunt, St. Thomas's Hospital; Kenneth Bruce Dickson, B.A. Cantab., Cambridge University and St. George's Hospital; Philip Geoffrey Doyne, B.A. Oxon., Oxford University and St. Thomas's Hospital; George Dunluce Eccles, Guy's Hospital; Eric Alfred Charles Fazan, Middlesex Hospital; Edwin James Foster, M.B. Toronto, Toronto University and London Hospital; Ivor Stanley Gabe, Durham University and London Hospital; Norman Garrard, B.A. Cantab., Cambridge University and Guy's Hospital; Gerald William Blackman Garrett, B.A. Cantab., Cambridge University and Guy's Hospital; Harold Cane Godding, Guy's Hospital; Edgar Mervyn Grace, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Bernard Grellier, L.D.S. Eng., Charing Cross Hospital; Cyril James Anthony Griffin, University College Hospital; Frank Arnold Gunesekera, L.M. & S. Ceylon, Ceylon Medical College and London Hospital; Alfred Ernest Hallinan, Charing Cross Hospital; William Edward Hallinan, Charing Cross Hospital; Sydney Hartley Hay, M.B., Ch.B., New Zealand, Otago University and Middlesex Hospital; Arthur Martin Henry, L.D.S. Eng., Guy's Hospital; Frederick Malcolm Sterling Hulke, Middlesex Hospital; Frank Cornwell Hunot, Guy's Hospital; Theodor Julius Juta Jeppe, Cambridge University and St. Thomas's Hospital; David William John, B.A. Cantab., Cambridge University and Guy's Hospital; Robert Edmund Johnston, B.A., M.B. Toronto, Toronto University and Middlesex Hospital; Manishanker Khushaldas Joshi, L.M. & S. Bombay, Bombay University and London Hospital; William Henry Kauntze, B.A., M.B., Ch.B. Manchester, M.B., B.S. London, Manchester University; Kenneth John Taylor Keer, Guy's Hospital; Francis Harry Kelly, Middlesex Hospital; Merlin Kingsley, Calcutta and Manchester Universities and Royal Free Hospital; Herbert Arnold Lake, M.R.C.V.S., University College Hospital; Harold William Latham, London Hospital; Hubert Vere Leigh, Guy's Hospital; Frank Graham Lescher, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Alfred Robinson MacMullen, B.A. Cantab., Cambridge University and London Hospital; Kamberranda Cariapa Mandana, Madras University and Middlesex Hospital; Henry Hugh Mathias, B.A. Cantab., Cambridge University and London Hospital; Arthur Wellington Matthew, London Hospital; Louis Marie Jacques Menage, Guy's Hospital; Cyril Cassan Messiter, L.M.S.S.A., M.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Alexander George Hains Moore, Guy's Hospital; Oswald Gayer Morgan, B.A. Cantab., Guy's Hospital; Donald Ewart Morley, London Hospital; Lionel Page, Bristol University; John Lansdowne Perceval, Guy's Hospital; Oswald Pitt, Manchester University; Courtenay Henry Gerard Pochin, Guy's Hospital; Lao Htin Poh, Calcutta University and Middlesex Hospital; Herbert Montagu Pope, Oxford University and St. George's Hospital; Sidney Bertram Radley, M.B., B.S. Lond., M.B., Ch.B. Manchester, Manchester University; Stanley Owen Rashbrook, London Hospital; Leslie Norman Reece, St. Thomas's Hospital; Minerva Ellen Reid, M.B. Toronto, Toronto University and Royal Free Hospital; Pierre Roux, London Hospital; John Alfred Ryle, Guy's Hospital; William Henry Price Saunders, Middlesex Hospital; Bernard Edward Patrick Sayers, Middlesex Hospital; William Simpson, St. Bartholomew's Hospital; Reginald Westmore Spence, Westminster Hospital; Charles Marshall Stallard, Manchester University; Rex Stansfeld, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Humphrey Meigh Stephenson, Cambridge University and London Hospital; William John Francis Symons, B.A. Cantab., Cambridge University and St. Thomas's Hospital; James Robert Karran Thomson, London Hospital; Maurice Lawrence Treston, London Hospital; Henry de Paiva Buchanan Veale, J.P., L.S.A., Leeds University; Aubrey William Venables, St. Mary's Hospital; Alfred Stewart Wakely, King's College Hospital; Horace Frederick William Warden, B.A. Cantab., Cambridge University and St. George's Hospital; Herbert Arnold Watermeyer, B.A. Cantab., Cambridge University and St. Mary's Hospital; Philip James Watkin, Guy's Hospital; Charles Alexander Weller, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Edgar William Whiting, St. Bartholomew's Hospital; Stanley Wickenden, Guy's Hospital; Arthur Wai-tak Woo, London Hospital; Bernard Woodhouse, University College Hospital; William Wilson Woods, London Hospital; and Leslie Douglas Wright, Guy's Hospital.

Diplomas in Public Health were also conjointly conferred upon the following 12 candidates—viz:—

Frederick John Ayre, L.R.C.P., M.R.C.S., L.S.A., St. Mary's Hospital and University College, Cardiff; Harold Balme, F.R.C.S., L.R.C.P., M.R.C.S., King's College; Jamasp Cursetji Bharucha (Lieutenant, I.M.S.), L.R.C.P., M.R.C.S., L.M. & S. Bombay, Bombay University and King's College; Elsie Mary Chubb, M.D., B.S. Lond., Royal Free Hospital and University College; William Edmund Cooke, M.B., Ch.B. Liverp., Liverpool University; Archibald Ferguson, M.B., B.S. Lond., L.R.C.P., M.R.C.S., St. Bartholomew's Hospital; Clifford Allchin Gill (Captain, I.M.S.), L.R.C.P., M.R.C.S., University College; Harvey Hilliard, L.R.C.P., M.R.C.S., St. George's Hospital and University College; John Edward Hodgson (Major, R.A.M.C.), L.R.C.P., M.R.C.S., Manchester University and Royal Army Medical College; Herbert Michael Henry Melhuish (Captain, I.M.S.), L.R.C.P., M.R.C.S., St. Bartholomew's Hospital and University College; Alexander Loftus Otway (Captain, R.A.M.C.), M.B., B.Ch., B.A.O. Dub., Dublin University and Royal Army Medical College; and Percy Rose, L.R.C.P., Guy's Hospital and University College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The undermentioned diplomas were also conferred by the Council on the following:—

F.R.C.S.—Bernard Constable Maybury, M.B., B.S. Lond., L.R.C.P., M.R.C.S., St. Thomas's Hospital.

L.D.S.—Lawrance Richards Haydon, Charing Cross and Royal Dental Hospitals; William Douglas McDonald, Middlesex and Royal Dental Hospitals; Oscar Henry Titmas, Charing Cross and Royal Dental Hospitals; Robert Douglas Breen Turner, Liverpool University.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. K. Bötticher, extraordinary professor of surgery, has been appointed Director of the surgical side of the Lichtenberg Hospital; Dr. Friedrich Gudzent has been recognised as *privat-docent* of Medicine; Dr. Ludwig F. Meyer and Dr. Joh. Eckert as *privat-docenten* of Children's Diseases; and Dr. A. Grotjahn as *privat-docent* of Social Hygiene.—*Breslau:* Dr. Josef Forschbach, *privat-docent* of medicine, has been granted the title of Professor.—*Brunswick:* Dr. Adolf Bingel, senior physician of the Ducal Hospital, has been granted the title of Professor.—*Halle:* Dr. E. Abderhalden, professor of physiology, has been awarded the Helmholtz Prize of the Berlin Academy of Sciences. The value is 1800 marks (£90).—*Leipsic:* Dr. Franz Hofmann, who has held the chair of Hygiene for 35 years, intends to retire at the age of 70, which he will reach in the summer.—*Naples:* Dr. U. Masucci has been recognised as *privat-docent* of Medical Semeiology.—*Pavia:* Dr. Giovanni Perez, extraordinary professor of surgical pathology, has been promoted to Ordinary Professor.—*Pisa:* Dr. Alfonso Sertoli has been recognised as *privat-docent* of External Pathology.—*Rome:* Dr. Vincenzo Caraffa has been recognised as *privat-docent* of Medical Pathology.—*Saratoff:* Dr. I. N. Bystrênin, of Kazan, has been appointed Professor of Pædiatry.—*Sienna:* Dr. Onofrio Fragnito, extraordinary professor of neurology and psychiatry, has been promoted to Ordinary Professor.—*Strasburg:* Dr. A. Hamm has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Turin:* Dr. Francesco Lasagna has been recognised as *privat-docent* of Otology and Laryngology.—*Vienna:* Dr. Richard Buer has been recognised as *privat-docent* of Medicine.—*Würzburg:* Dr. Ernst Schmidt has been recognised as *privat-docent* of Surgery.

MIDDLESEX HOSPITAL.—Arrangements are being made for the production during the season of a new musical play, entitled *Claude Abroad*, by Charles and Muriel Scott Gatty, with music by Sir Alfred Scott Gatty and Charles Scott Gatty, for the benefit of the Middlesex Hospital. Lady Churston (Miss Denise Orme) will return to the stage for these performances, and will be supported by many well-known amateurs.

THE SECOND INTERNATIONAL "FIRST AID" CONGRESS.—This congress is to be held at Vienna in September next. Of the British sectional committee the Earl of Londesborough has accepted the presidency, and

the vice-presidency has been accepted by Lord Claud J. Hamilton, M.P., while a very influential and thoroughly representative committee have accepted office. Any application or inquiry concerning the same may be addressed to Mr. Samuel Osborn, Constitutional Club, Northumberland-avenue, W.C.

Sir Richard Douglas Powell will deliver two Emeritus lectures on Fridays, March 7th and 14th, at 3 P.M., in the Middlesex Hospital Medical School, on the Climatic Treatment of Pulmonary Diseases.

MEMORIAL TO SIR WILLIAM ALLCHIN.—In memory of the late Sir William Allchin, consulting physician to Westminster Hospital and physician extraordinary to H.M. George V., who died on Feb. 8th, 1912, a brass tablet has been placed in the hospital chapel, and a replica of his portrait, painted by Sir Luke Fildes, R.A., and presented by Lady Allchin, has been hung in the board-room, where it is thought many of his friends and former pupils would be glad of the opportunity of viewing it.

MEMORIAL TO A MIDLOTHIAN PRACTITIONER.—On Feb. 8th, in Lasswade Churchyard, in the presence of representatives of the various public bodies of the district and of the public, a memorial to the late Dr. C. J. Allan, of Lasswade, was unveiled by Provost Gilchrist. It is in the form of a handsome Celtic cross in granite, the cost of which has been subscribed by the inhabitants of the district. The Rev. R. M. Hardie, parish minister of Cockpen, who presided over the ceremony, made reference to Dr. Allan's valued work for nearly half a century, both in his profession and as a member of the various boards and institutions.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Administration of the Insurance Act.

THE administration of the Insurance Act has occupied much of the attention of the House of Commons since the beginning of the year. This has been mainly evident at question time, when scarcely a day has passed without the appearance on the notice paper of a large number of questions dealing with various matters, sometimes of principle, sometimes of detail, which have arisen from time to time. Amongst members who have particularly taken an interest in questions arising out of medical benefit are Sir PHILIP MAGNUS, Sir HENRY CRAIK, Mr. WORTHINGTON EVANS, Mr. GODFREY LOCKER-LAMPSON, and Mr. CASSEL. The former two have in a peculiar sense had a responsibility in the matter, as they represent university constituencies in which medical men are a very considerable element in the electorate. Mr. WORTHINGTON EVANS and Mr. CASSEL have shown marked skill in mastering the administrative details of the Act and the Regulations. The task of replying on behalf of the Government and the Insurance Commissioners has mainly fallen on the shoulders of Mr. MASTERMAN, the Secretary to the Treasury, whose Parliamentary ability in handling difficult questions has been recognised in all quarters of the House.

Limited Panel Service.

Many of the aspects of medical benefit were dealt with in the debate on the supplementary medical grant in aid on Friday, Feb. 7th. On that occasion the Chancellor of the Exchequer made a defence of the Government's policy. However, the discussions on the Appropriation Bill permitted the House of Commons to review it again. The point of interest in these discussions was the declaration of the Government in regard to the free choice of medical men and limited panel service.

On Wednesday, Feb. 12th, Mr. MASTERMAN, in the course of a speech in which he again stated that professional medical secrecy was safeguarded under the system of records which panel practitioners were required to keep, went on to say that the Government always had intended, and still intended, that the Insurance Committees, if they wished to do so, when they had assured adequate medical attendance for all insured persons within their areas, should permit under certain conditions arrangements in connexion with doctors who might not be on the panel. For example, he believed that the London Insurance Committee had granted or was granting a general exemption under Section 15 (3) allowing nurses at hospitals to make their own arrangements with doctors at the hospitals who were not, and who did not want to be, on the panel and who did not want to attend insured persons outside the hospitals. Similarly conditions might be laid down with regard to allowing doctors to go on the panel to attend only a limited number of persons. This practice in the working of any Insurance Committee must be qualified by one dominant consideration—the duty of the Insurance Committee in conjunction with the doctors on the panel to see that every insured person within their area received adequate medical attendance. A medical man who did not want to have 1000 or 2000 insured patients, might be quite willing to go on attending at the ordinary insurance rate—say the servants in the houses where he had been attending. He had been in consultation with the Chairman of the London Insurance Committee on the subject, and he said, as the Commissioners said in conjunction with the Insurance Committee, that there was no kind of objection to these cases being met by Insurance Committees permitting doctors to go on the panel in order to attend a limited number of cases, so long as that was done in conjunction with an agreement with the doctors on the panel, and so long as the system could be interwoven with a system whereby adequate medical attendance could be given to every insured person within the area. He had not the slightest doubt that this could be done. The right honourable gentleman went on to refer to "a definite, deliberate and avowed attempt to break the Act to pieces in London." He maintained that the Insurance Committees when confronted with this avowed and organised conspiracy were perfectly justified in saying, "Until we have assured medical attendance for all the insured persons in our areas, if possible by the panel system, if not by some other system, we will not have the Act broken up by 'own arrangements.'" The great bulk of requests for "own arrangements" which had come in to the Insurance Committees with which he had been in contact had not been *bonâ fide* applications at all. They had come in on forms all in the same handwriting, evidently the result of a canvass in which probably complete misapprehension had been created in the minds of insured persons as to the real meaning of the Act. On the other hand, peace being restored, as he believed it was, the doctors, he anticipated, if only they were left alone, would be found working the Act with ever-increasing enthusiasm. With friendly conjunction between the Insurance Committees and the panel doctors, arrangements being made to meet the needs of all the insured persons in the area, he saw no reason at all why in certain special cases the use of Section 15 (3) should not be allowed where special circumstances were made out for it. What would be better still would be that doctors should, with friendly arrangements with their colleagues, come on the panel for a limited number of insured persons only.

Two Important Reservations.

Mr. MASTERMAN elaborated in some respects his statement on the use of Section 15 (3) in the debate on the third reading of the Appropriation Bill on Friday, Feb. 14th. He said that in regard to exceptional cases in which for some special reason doctors did not wish to enter their names on the panel for general work, and insured persons wished to choose those doctors, no obstacle would be placed in the way of Insurance Committees exercising their discretion in any manner which they desired in order to allow exceptional cases to be dealt with under the exceptional clauses of the Act so long as the Insurance Committees were fulfilling the primary purpose for which they were created—namely, to give medical benefit to every insured person within the Act. The Government agreed with the suggestion of the chairman of the London Insurance Committee that doctors who wished to take only a limited number of patients should be permitted to come on the panel for such limited number. But that was subject to two important reservations. The first was that it would be unfair that they should be allowed to pick out special lives with less than the average rate of sickness and yet receive the remuneration which the Government believed to be a liberal one for average lives. Doctors who took selected lives should be willing to receive less remuneration for those selected lives, in order that more remuneration might be given to those doctors who did not limit themselves to selected lives. The second condition must be that the Insurance Committees could only give consent to doctors taking a limited number of lives in conjunction with the free approval of medical men who took the general risk. The right honourable gentleman then went on to explain that there was no intention whatever of bringing in inspectors to examine the methods of treatment and diagnosis adopted by medical practitioners on the panel. On the question of mileage in difficult districts in the Lowlands of Scotland the Government were providing a special grant. The Commissioners would draw up a scheme of distribution, and it would be retrospective, so that the allowances would be paid from the commencement of the Act.

Tuberculosis Prevention (Ireland) Bill.

When the Tuberculosis Prevention (Ireland) Bill reached the House of Lords from the House of Commons on Thursday, Feb. 13th, two of the clauses which originally stood in it had been struck out. The first two clauses were deemed important, but the Chief Secretary to the Lord Lieutenant for Ireland, Mr. BIRRELL, found that they were likely to produce opposition in the House of Commons. In order to allow the Bill to proceed as an uncontroversial measure he agreed to drop them.

The first clause which was struck out in Committee of the House of Commons extended the provisions of Part I of the Tuberculosis Prevention (Ireland) Act to the whole of Ireland.

Clause 2, which also disappeared, provided that certificates with regard to a person suffering from tuberculosis which had now to be sent to the medical officer of health should be sent to the medical superintendent of the nearest dispensary. The latter was to report to the sanitary authority.

The Bill has been read a third time by the House of Lords.

Milk and Dairies Bill.

The Milk and Dairies Bill was withdrawn by the Government in the House of Commons before it rose for its short holiday preceding the Prorogation.

The Parliamentary Session.

Both Houses of Parliament have adjourned for a fortnight. Thereafter the Prorogation will take place and a new session will be commenced shortly afterwards.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 12TH.

The National Insurance Act and Records of Disease.

Mr. CASSEL asked the Secretary to the Treasury whether it would be possible to ascertain the diseases from which any insured person had suffered or was suffering by comparing the records in the hands of the Insurance Commissioners with those in the hands of the Insurance Committees; and, if so, how far would such records be kept secret; would privilege from production in any court of law be claimed; and had any information from such records been or would be supplied to the Treasury or any other Government department.—Mr. MASTERMAN replied: The answer to the first part of the question is in the negative. The arrangements for the keeping and furnishing of records secure that information which would connect the name of a patient with an entry as to a particular kind of disease could not be obtained by the Commissioners, the Insurance Committee, or the society. The particulars of illnesses and certain other particulars (but not anything by which the patient can be identified) will be used for statistical purposes.

Mr. CASSEL: Is the right honourable gentleman aware that half the forms filled up by the doctors containing the name of the disease is sent to the Insurance Commissioners, and the other half containing the name of the patient suffering from the disease is sent to the Insurance Committees, and that they can be identified together by the numbers which are on them? If I can prove to the right honourable gentleman that that is the case, will he take steps to see that proper secrecy is preserved?—Mr. MASTERMAN: I am informed that the forms are so arranged that it is quite impossible to identify them even if they were kept together.

Aged Members of Friendly Societies and Medical Attendance.

Replying to Mr. BUTCHER, who asked whether the Secretary to the Treasury was aware of the difficulties which Friendly Societies were experiencing in supplying medical benefits out of their own funds to persons who were over 65 and who were not insured under the National Insurance Act, Mr. MASTERMAN answered: I am not in a position to say whether or to what extent societies have found it impossible to arrange with the doctors, who are receiving a higher remuneration than hitherto for insured persons, to continue to treat the small and diminishing number of their own aged and infirm patients who are not insured upon the same, or approximately the same, terms as before.

The Assistants of Panel Practitioners.

In reply to Mr. F. HALL (Dulwich), Mr. MASTERMAN said: A practitioner on the panel may depute an assistant to act on his behalf when he is precluded by urgency of other professional duties, absence from home, or other reasonable cause from giving personal attendance to an insured person under his care. It is the duty of the Insurance Committee to take any necessary steps to secure that the service provided by any assistants is satisfactory, but, subject to this, the remuneration of such assistants is a matter for their principals and themselves to determine.

Medical Representation on Portsmouth Insurance Committee.

Lord CHARLES BERESFORD asked the Secretary to the Treasury whether, in spite of Section 59 (Subsection 12) of the National Insurance Act, providing that a certain proportion of medical men should sit on each Local Insurance Committee, and that the names of such medical men had been submitted to the Commissioners as having been elected by the members of the medical profession as long ago as Jan. 22nd, 1913, nevertheless at Portsmouth their names had not yet been approved by the Insurance Commissioners; whether he was aware that the Local Insurance Committee was refusing to allow these elected medical members to sit and vote on any question whether medical or otherwise, some such points being of vital importance to the medical profession, unless they were so approved by the Commissioners; whether the Local Insurance Committee under such circumstances was properly constituted; and whether any decisions arrived at by such committee were valid.—Mr. MASTERMAN wrote in reply: The election of medical practitioners under Section 59 (2) (c) must be carried out under Regulations made by the Insurance Commissioners, and the election under these Regulations is now proceeding. The medical men referred to by the noble lord have not been duly elected in accordance with the requirements of the Act, and are therefore not entitled to sit as members of the Insurance Committee. The Insurance Committee is legally constituted by an order made under Section 78 of the Act, and its proceedings are not invalidated by reason of any such appointments as those referred to by the noble lord not having been made.

Free Choice of Medical Men in Lancashire.

Viscount WOLMER asked the Secretary to the Treasury whether he was aware that the Lancashire Insurance Committee had refused to allow insured persons to choose their own doctor, and whether that Committee was carrying out the wishes of the Government in this respect.—Mr. MASTERMAN (by written answer) replied: Every insured person has a right to choose any doctor on the panel in Lancashire and elsewhere, and I am not aware that the Lancashire Insurance Committee has taken any action that would deprive insured persons of that right. An Insurance Committee, in allowing or refusing to allow insured persons to make their own arrangements for treatment by a doctor who is not on the panel, must exercise its discretion in accordance with the Act and the Regulations.

Supply of Drugs under the National Insurance Act.

Replying to Mr. NIELD, Mr. MASTERMAN said: There is no foundation whatever for the suggestion that a list of drugs of inferior quality is scheduled for supply to insured persons. No list of drugs at all is scheduled to the Regulations. Each Insurance Committee is required to make up its own list of drugs, and the only relevant requirement of the Regulations is that "all drugs and appliances shall be of good quality." In addition to the list of drugs that may ordinarily be supplied, any doctor on the panel is empowered by the Regulations, when he thinks necessary, to prescribe other drugs not included in the list. So far as I am aware there is no ground for the allegation that drugs of inferior quality are being supplied by chemists to insured persons.

New Sanatorium Provision in England.

Mr. WHELER asked the President of the Local Government Board how many sanatoria were being built for the purposes of the National Insurance Act; where such sanatoria were situated; what number of patients they would hold when complete; and what would be the cost of the buildings.—Mr. BURNS said in reply: My information goes to show that in England fresh provision is already being made for the reception of tubercular patients at Birmingham, Liverpool, Derby, Ford, Bolton, Sutton, Meathop, Wakefield, and Winsley. The number of patients to be provided for in this new accommodation is about 600. I cannot give the precise cost at the present time.

Mr. WHELER: What sanatoria are being built? I do not mean new buildings.—Mr. BURNS: The bulk of the new accommodation in the towns I have mentioned consists of substantial additions, and in the case of Birmingham of new buildings.

Mr. WRIGHT: Does the right honourable gentleman suggest that a sanatorium is being built at Birmingham?—Mr. BURNS: I suggest that a new pavilion, capable of holding from 30 to 40 is in process of building.

Sanatorium Treatment in Lanarkshire.

Mr. MASTERMAN informed Mr. Duncan Millar that 63 applications were received by the Insurance Committee of the county of Lanark during the first six months of the operation of the National Insurance Act. In 53 of these sanatorium benefit was granted. Eight other cases are under consideration, the remaining two being refused, as the disease was not diagnosed as consumption.

Epidemic Outbreaks and Milk-supply.

Mr. F. HALL (Dulwich) asked the President of the Local Government Board how many epidemic outbreaks occurred in England and Wales in the years from 1906 to 1912 inclusive from the consumption of infected milk, and the number of deaths arising therefrom.—Mr. BURNS replied: A number of outbreaks of enteric fever, scarlet fever, and diphtheria have during the last six years been traced to the consumption of specifically infected milk. Perhaps the most important of these outbreaks was one of scarlet fever in 1909 reported on by Dr. Hamer to the London County Council, and Dr. H. Jones to the Surrey county council. In several published reports by medical inspectors of department, particulars had been given of outbreaks of enteric fever traced to milk. Though I have thus a certain amount of information, it is not sufficient to enable me to give a complete statement of the total number of outbreaks and of the deaths due to them.

The Local Government Board and Enteric Fever.

Lord HENRY CAVENDISH-BENTINCK asked the President of the Local Government Board, in reference to the districts mentioned in the 1911-12 report of the medical officer to the Local Government Board as showing the highest incidence of enteric fever, whether he would give the number of reports made by the Board's medical officers on the health of these districts which contained recommendations to the local authorities, and state what action the Local Government Board had taken to secure the adoption of these recommendations.—Mr. BURNS wrote in reply: Reports have been made by my inspectors in respect of all but three of the districts to which the noble lord refers. It is the practice of the Local Government Board to request the local authority to take the inspector's report into consideration, and the matter is followed up by correspondence, or, where necessary, by a special visit of an inspector. I am not prepared to say that every suggestion and recommendation made by my department is always promptly adopted, but I am satisfied that they are, as a rule, carefully considered by the local authority, and that improvements and advantage result from them.

The Royal Commission on Vivisection.

Answering a series of questions put by Mr. GEORGE GREENWOOD, Mr. MCKENNA (the Home Secretary) said that the majority of the Royal Commission on Vivisection were of opinion that no change was necessary or desirable with regard to the present system of granting licences and certificates. He did not propose to introduce legislation on this matter. The Secretary of State had power to disallow or suspend any certificate, and the final responsibility rested with him.

Mr. GEORGE GREENWOOD asked the right honourable gentleman whether his attention had been called to the recommendation made in the memorandum signed by three of the Royal Commissioners on Vivisection, and attached to the Report, that a provision should be inserted in the Act regulating experiments upon living animals requiring all experimenters in every case in which obvious suffering of the animal had supervened forthwith painlessly to destroy such animal; and whether he would introduce legislation in order to give effect to such recommendation.—Mr. MCKENNA replied: The answer to the first part of the question is in the affirmative. My honourable friend will no doubt be aware that the majority of the Commission were of opinion that the object in view could be sufficiently attained by means of the Secretary of State's power of attaching conditions to licences, and I am taking steps to carry out this recommendation. In the circumstances, legislation appears to me to be unnecessary.

THURSDAY, FEB. 13TH.

Medical Men and Dispensing under the National Insurance Act.

Mr. MILDMAY asked the Secretary to the Treasury whether he was aware that many doctors were intimating to insured patients residing at a greater distance than three miles from a qualified chemist that they would be unable to dispense medicines for this class as in the past, in consequence of the amount of intricate clerical work now required of them in this connexion; and would he explain how it was intended that this difficulty should be met in view of the inability of working men to afford the expense or the time for a journey of over three miles.—Mr. MASTERMAN answered: I know of no reason why any such clerical work as is suggested in the question should be required from doctors dispensing medicines in rural areas. Doctors dispensing in such areas may be permitted to receive a flat rate per insured person where the capitation system is in force or per prescription where the attendance system is in force.

Mr. MILDMAY: Is the right honourable gentleman aware that doctors have the power and are exercising the power of refusing to dispense

medicines for those living at a greater distance than three miles from a chemist, and how does he propose that the difficulty shall be met?—Mr. MASTERMAN: I am not sure about that. I do not think any case of that sort has been brought to my notice. I will look into the matter.

Sanatorium Benefit in Lanarkshire.

Replying to Mr. DUNCAN MILLAR, Mr. MASTERMAN said: I am informed that the present number of beds available for the institutional treatment of tuberculosis in the county of Lanark is 183, that the cost of providing sanatorium benefit within the county up to the 15th ult. was £645 15s. 1d., and that arrangements have been made in conjunction with the public health authority for the immediate admission to sanatoria of all tuberculous insured persons in the county who are recommended for institutional treatment.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANDERSON, H. GRAEME, M.B., Ch.B. Glasg., F.R.C.S. Eng., has been appointed Senior Assistant Surgeon to St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum; also Assistant Surgeon to the Belgrave Hospital for Children.

COOMBS, HAROLD MARTIN MCCULLOCH, M.B., B.C. Cantab., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Bedford County Hospital, Bedford.

CROWE, J. T., L.S.A. Lond., L.M.S.S.A. Lond., has been appointed Tuberculosis Medical Officer to the County of Leicestershire.

CRUMP, J. A., M.R.C.S., L.R.C.P. Lond., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 28, to be attached more particularly to the Llanfyllin and Welshpool County Courts.

DUGUID, W. R., M.D. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Buckie District of the county of Banff.

HEYWOOD, C. CHRISTOPHER, M.B., B.C. Cantab., M.R.C.P. Lond., M.R.C.S., has been appointed Honorary Physician to the Salford Royal Hospital.

LEA, C. EDGAR, M.D. Vict., M.R.C.P. Lond., has been appointed Honorary Assistant Physician to the Salford Royal Hospital.

OLLERENSHAW, ROBERT, M.D. Vict., F.R.C.S. Eng., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 13, to be attached more particularly to the Glossop County Court.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AGRA, DUFFERIN HOSPITALS.—Female Doctor. Salary Rs.300 a month, with free quarters.

ASHTON-UNDER-LYNE UNION WORKHOUSE.—Assistant Resident Medical Officer. Salary £150 per annum, with rations, laundry, and residence.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BATH, EASTERN DISPENSARY.—Resident Medical Officer. Salary £130 per annum, with rooms, coal, gas, and attendance.

BEDFORD COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry. Also Assistant House Surgeon. Salary £80 per annum, with board, lodging, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. Salary £75 per annum, with board, rooms, and laundry allowance.

BIRMINGHAM, QUEEN'S HOSPITAL.—Radiographer. Salary £100 per annum.

BIRMINGHAM UNION, DUDLEY-ROAD INFIRMARY.—Chief Medical Officer. Salary at rate of £750 per annum, with apartments, &c.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £80 per annum, with board, lodging, and laundry.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £100 per annum.

BRADFORD CITY TUBERCULOSIS DISPENSARY.—Assistant Medical Officer. Salary £300 per annum.

BRADFORD POOR-LAW UNION HOSPITAL AND WORKHOUSE.—Female Assistant Resident Medical Officer, unmarried. Salary £130 per annum, with rations, apartments, and washing.

BRADFORD ROYAL INFIRMARY.—Two House Surgeons, unmarried. Salary £100 per annum, with board, residence, and washing.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BURY INFIRMARY.—Senior House Surgeon. Salary £110 per annum, with board, residence, and washing. Also Junior House Surgeon. Salary £80 per annum, with board, residence, and washing.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CAIRO, SCHOOL OF MEDICINE.—Assistant to Professor of Biology and Parasitology. Salary £400 per annum.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—House Physician. Salary £80 per annum, with board, residence, and laundry.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—House Surgeon. Also House Surgeon for Ophthalmic and Ear and Throat Departments, each for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 per annum, with board, lodging, and washing.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—Honorary Pathologist.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

CRUELTY TO ANIMALS ACT, 1876.—Two Inspectors. Salary £500 per annum.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £120 per annum, with board, lodging, and laundry.

DOUGLAS, ISLE OF MAN, NOBLE'S ISLE OF MAN HOSPITAL.—Resident House Surgeon, unmarried. Salary £90 per year, with board and washing.

DURHAM COUNTY COUNCIL.—Assistant Tuberculosis Medical Officers. Salary £300 per annum.

EAST LONDON MUNICIPALITY, South Africa.—Medical Officer of Health. Salary £600 per annum.

ESSEX, ADMINISTRATIVE COUNTY OF.—Three Tuberculosis Officers. Salary £500 per annum each.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, London, S.E.—House Physician for six months. Salary at rate of £75 per annum, with board, residence, and washing.

GLASGOW MATERNITY AND WOMEN'S HOSPITAL.—Two Indoor House Surgeons and Two Outdoor House Surgeons. Also Female Outdoor House Surgeon at West-end Branch. Indoor appointments six months, outdoor three months.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Resident Medical Superintendent. Salary 100 guineas per annum, with board and residence.

HOSPITAL FOR WOMEN, Soho-square, W.—Junior Resident Medical Officer for eight months. Salary at rate of £30 per annum, with board, lodging, and laundry.

HUDDERSFIELD ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £80 per annum, with board, residence, and washing.

LEEDS HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Medical Officer, unmarried, for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and residence.

LEEDS, WEST RIDING ASYLUM, Menston.—Fourth Assistant Medical Officer. Salary £150 per annum, with board and apartments.

LINCOLN GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £300 per annum, with apartments, fire, and lighting.

LISTER INSTITUTE OF PREVENTIVE MEDICINE.—Second Research Assistant in Biochemical Department. Salary £200 per annum. Also Assistant Bacteriologist. Salary £250 per annum.

LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—House Physician and Three House Surgeons for six months. Salaries at rate of £60 per annum, with residence and maintenance.

LIVERPOOL INFIRMARY FOR CHILDREN.—Resident House Surgeon and Resident House Physician for six months. Salary £30, with board and lodging.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons, all for six months. Salary in each case at rate of £60 per annum, with board and residence.

LONDON LOCK HOSPITAL.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried, for six months. Salary at rate of £100 per annum.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Aural Surgeon.

MANSFIELD, BOROUGH OF.—Medical Officer of Health and Medical Inspector of School Children. Salary £400 per annum.

MELTON, SUFFOLK DISTRICT ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £180 per annum, with board, apartments, attendance, and laundry.

MIDDLESEX HOSPITAL MEDICAL SCHOOL.—Senior Demonstrator of Anatomy. Salary at rate of £100 per annum.

MILDMAY MISSION HOSPITAL, Austin-street, Bethnal Green, E.—Assistant Physician, Assistant Surgeon, and Anæsthetist.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £85 per annum, with board, residence, and laundry.

NESTING AND LUNNASTING.—Medical Officer. Salary £50 per annum.

NEWCASTLE-ON-TYNE DISPENSARY.—Four Visiting Medical Assistants. Salary £160 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £170. Also Resident and Assistant Resident Surgeons for Branch. Salaries £180 and £170 per annum respectively, with apartments, attendance, light, and fuel.

NOTTINGHAM WORKHOUSE INFIRMARY.—Two Resident Assistant Medical Officers, unmarried. Salary £150 per annum, with apartments, board, washing, and attendance.

PAISLEY DISTRICT ASYLUM, Riccartsbar.—Assistant Resident Medical Officer. Salary £130 per annum, with board and apartments.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Resident Medical Officer. Salary £150 per annum, with board, washing, and attendance.

PRESTON ROYAL INFIRMARY.—Senior House Surgeon, unmarried, for six months. Salary £80 per annum, with board, residence, and washing.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

ROCHDALE INFIRMARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL.—Senior House Surgeon. Salary £110 per annum, with board, lodging, and washing.

ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £71 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Lang Clinical Research Scholarship. Salary at rate of £120 per annum. Also Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NAVAL MEDICAL SERVICE.—Twenty-five appointments.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Pathologist and Curator. Salary £50.

ST. GEORGE'S DISPENSARY AND SCHOOL CLINIC, Surrey-row, Blackfriars, S.E.—Junior Medical Officer for three or six months. Salary at rate of £100 per annum. Also Surgeon to the Nose, Throat, and Ear Clinic for the Treatment of Elementary School Children. Salary at rate of £50 per annum.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £30 per annum, with board, residence, and allowance for laundry.

SHEFFIELD UNION HOSPITAL, Firvale.—Resident Assistant Medical Officer, unmarried. Salary £120 per annum, with apartments and rations.

SMETHWICK, CORNWALL WORKS DISPENSARY.—Assistant Medical Officer. Salary £300 per annum.

SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £60 per annum, with rooms, board, and washing.

SOUTH AFRICA LUNATIC AND LEPER ASYLUM SERVICE.—Junior Medical Officer, unmarried. Salary £280 per annum, with quarters.

STAFFORD, COTON HILL MENTAL HOSPITAL.—Assistant Medical Officer, unmarried. Salary £170 per annum, with residence, board, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £30 per annum, with board, washing, and residence.

STOCKPORT UNION, STEPPING HILL HOSPITAL.—Resident Assistant Medical Officer. Salary £150 per annum, with apartments, rations, &c.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

SUNDERLAND CHILDREN'S HOSPITAL.—Resident Medical Officer for six months. Salary £30 per annum, with board, residence, and laundry.

SWINTON AND PENDLEBURY URBAN DISTRICT.—Medical Officer of Health and Schools Medical Officer. Salary £325 per annum.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

VICTORIA HOSPITAL FOR CHILDREN.—Surgeon to Out-patients.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon. Salary £30 per annum, with board, residence, and laundry.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Physician.

WESTERN OPHTHALMIC HOSPITAL, Marylebone-road, N.W.—Non-resident House Surgeon for six months. Salary £40 per annum.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Castletown, Berehaven, in the county of Cork; and at Hoylake, in the county of Chester.

THE Secretary of State for the Home Department gives notice of a vacancy for an Ophthalmic Specialist Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 21, 22, and 36.

Births, Marriages, and Deaths.

BIRTHS.

DYSON.—On Feb. 12th, at Lower-road, Rotherhithe, S.E., the wife of Malcolm Goodworth Dyson, F.R.C.S., of a daughter.

JORDAN.—On Feb. 19th, at 11, Bentinck-street, W., to Dr. and Mrs. Alfred C. Jordan, a son.

PENNINGTON.—On Feb. 12th, at Queen-street, Mayfair, W., the wife of Drury Pennington, M.B., of a son.

MARRIAGES.

ADAMS—APPLEYARD.—On Feb. 15th, at St. Marylebone Parish Church, James Wilmot Adams, M.B., B.C.Cantab., to Irene, youngest daughter of the late Dr. James Appleyard, of Longford, Tasmania.

DEATHS.

BOYD.—On Feb. 15th, at Sloane Court, S.W., Campbell Boyd, L.R.C.P.I., L.M., the beloved husband of Isabell Boyd, after a short illness.

CHAVASSE.—On Feb. 17th, at The Linthurst Hill, Barnt Green, Worcestershire, Sir Thomas Chavasse, F.R.C.S., aged 58.

DYSON.—On Feb. 12th, at Lower-road, Rotherhithe, S.E., Malcolm Goodworth Dyson, F.R.C.S., aged 45 years.

HART.—On Feb. 10th, at St. Stephen's-avenue, Ealing, Herbert Wheatley Hart, M.D., in his 55th year.

SCARTH.—On Feb. 17th, at Stanghow, Isaac Scarth, M.B., B.S. Lond., B.Sc. Manch. Univ., the beloved husband of Rosa Marion Scarth, in his 59th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHANGE OF ADDRESS.

WHEN a medical man moves house it is only natural that he should wish to announce the fact to his colleagues as soon as possible, since early notice of the new address may save much inconvenience to himself and them. But at present the opportunities for making such announcements are limited. Professional etiquette rightly debars medical men from advertising their change of address in the lay newspapers, while the various directories—medical, Post Office, and telephone—appear at too long intervals to be of help during the period of worst confusion. It is thus not very easy for medical men to keep themselves and each other informed of removals within the profession, for the Post Office is a laborious medium of communication, and the students' gazette of any individual hospital reaches only one section of the medical world. This disadvantage has several times been brought to our notice by readers, and the remedy always suggested to us is that THE LANCET should reserve a special place week by week for brief announcements of new addresses and new telephone numbers. After inquiry we have come to the conclusion that this form of publicity would be welcomed by our readers generally, and we therefore propose to institute a Change of Address column to come immediately after the announcements of Appointments and Vacancies.

VITAL STATISTICS OF BARBADOS.

A REPORT on the Blue-book of Barbados for the year 1911-12 gives the population of the colony as 173,422—71,544 males and 101,878 females. The birth rate per 1000 was 35·2 and the death-rate 26·3. Illegitimate births numbered 3546, or 58 per cent. of the total births. The burials of children under a year old numbered 1605, giving a rate of 263 per 1000 births. The relation of infantile mortality to illegitimacy cannot be ascertained from the returns at present authorised by law; but steps for the reduction of the rate of infantile mortality are engaging the serious attention of the Government and the parochial authorities. The Barbados General Hospital, situated in Bridgetown, is maintained by Government grant, but is not directly under Government control. It is governed by a court of directors of 18, of whom 16 are so either *ex officio* or by appointment from the Legislature, and the remaining two are life members. In 1911 there were 3759 admissions, 276 deaths, and 27,132 out-patients. The daily average in hospital was 200. At the lazaretto there were 14 admissions and 12 deaths, leaving 116 inmates at the end of the year. The average daily number was 114·6. There is no legally compulsory segregation of lepers. The average maximum temperature was 83·8° F. and the average minimum 75·3°. The highest temperature for the year was 89·1° on August 10th, and the lowest 61·0° on Feb. 20th. The rainfall of the island for the year, as registered at 154 stations, was 59·28 in., which was rather below the average. The number of tourists visiting the island during the year was 2164. The visitors may be divided into three categories: (*a*) Those brought by tourist ships, who stay only for a day; (*b*) tourists from Europe and North America, who stay at the principal hotels or rent houses during the winter months; (*c*) visitors from South America, particularly Brazil, who rent houses near the sea during their stay, which, owing to the island's reputation as a health resort, is generally of considerable duration. For the special accommodation of this class, Brazilian hotels are now being established. In connexion with one of the principal articles of manufacture in the colony—rum, to wit—it is remarked in the report that "a by-product of the manufacture is fusel oil. The quantity is not large enough for profitable export, but every drop is much sought after as a lotion, by the use of which sufferers from rheumatism can obtain immediate comfort and ultimate cure."

THE PATHOLOGY OF THE PEARL.

AN interesting account of the Ceylon pearl fisheries is given by Mr. S. Muttiah in the February number of the *London Hospital Gazette* together with many particulars about the industry and the methods of conducting it. The theory of pearl formation adopted by the Royal Society's Commission 10 or 12 years ago was that of a pathological secretion formed round some foreign body, such as a grain of sand; and such an explanation is certainly plausible, in view of the fact that only a small percentage of the oysters from the Ceylon beds contain pearls. Two other theories are mentioned by Mr. Muttiah: one ascribes the process to the irritation of the dead larvæ of a parasitic worm (*tetrarhynchus*); the other to a disease of the muscles of the oyster somewhat analogous to the formation of gall-stones in human beings. All three views agree in regarding the pearl as pathological, not physiological. We are not told how differences in colour are explained, especially such very marked differences as in the curious pink, yellow, and often very irregularly

shaped pearls which are found on the Bahama banks in another species of mollusc. Nor has science yet succeeded in improving on Nature's wasteful and inefficient processes by rendering possible the artificial encouragement and control of pearl formation; but stranger things have happened, and this is by no means beyond the bounds of possibility. The fishing on the Ceylon banks is conducted in the most primitive way by natives of at least half a dozen races, of whom the Arabs are said to be able to stay longest under water—namely, 60 to 85 seconds. As a rule, it appears, the average diver does not suffer materially in health from his occupation, though deafness is very common. The usual maximum depth worked is seven fathoms, at a pressure of about two and a quarter atmospheres. On one occasion when a deeper bed was fished at nine fathoms five men collapsed, of whom two died; but, as a general rule, the divers live as long as others of the coolie class. Years of good harvest alternate with lean ones; thus, in 1814 the catch yielded £105,187, while in 1815 the revenue was £584. In 1906 the Ceylon Government leased the fishing to a London syndicate for a rent of £310,000 per annum, but a couple of years later it was found that beds of young oysters which should have been left to grow had been destroyed, and it is understood that the syndicate is seeking to be released from the agreement.

THE RECORD PACE.

ON Saturday last, on the Brooklands track, Mr. Percy Lambert, an amateur, drove a Talbot 25 h.p. car 103½ miles in an hour. It is reported that this is the first time in the history of the world that a human being has travelled 100 miles on land within 60 minutes. Probably there are not many human beings who desire such a distinction.

HEALTH AND SANITATION IN TRINIDAD AND TOBAGO.

A REPORT on the Blue Book of the Colony of Trinidad and Tobago for the year 1911-12 gives the estimated population as 340,223. The number of births recorded during the year was 11,674, as compared with 11,570 in 1910-11. The deaths numbered 7870, as against 7448 in the preceding year. The birth-rate, calculated on the mean population, is shown to be 34·65 per 1000 and the death-rate 23·36. The principal causes of death during the year were: diarrhœa and enteritis, 951; malarial fever, 722; typhoid, 87; pulmonary tuberculosis, 631; other forms of tuberculosis, 62; bronchitis, 372; pneumonia, 306. Nearly all the medical officers report favourably on the general health conditions of their districts during the year, there being little infectious disease and no unusual prevalence of endemic disease. A mild type of measles, unattended by any deaths, occurred in some districts. Five cases of bubonic plague occurred during the year, four being fatal. Precautionary measures against this disease are actively carried on at all times, and during the year 22,658 rats were caught, of which 16,682 were bacteriologically examined for evidence of plague infection. Only one infected rat, however, was discovered. No case of yellow fever occurred; indeed, there has been no case since April, 1910. The work of mosquito reduction is regularly carried out, and the good results obtained are sensibly felt in Port-of-Spain, where 131 convictions for breach of the mosquito regulations were obtained and fines amounting to £26 recovered.

Some of the district medical officers refer to the inadequate supply of water in their districts leading to the use of sources of supply unfit for domestic purposes, more especially during the prevalence of severe droughts, and thus giving rise to diarrhœal and dysenteric affections. The water-supply in many districts is very deficient in the dry season, and the question of the provision of additional sources of good water presents great difficulty. Borings have been made by the Government with indifferent success, and the matter is receiving attention. The Colonial Hospital, Port-of-Spain, is the most important in the colony. The number of patients admitted at this institution during the year was 6218, the daily average in hospital being 304. There were 718 deaths. Of the patients discharged, 2110 were cured, 3151 relieved, and the condition of 250 not improved. At the San Fernando Hospital 3091 persons were admitted, the daily average of patients being 97. The deaths numbered 374. Of the patients discharged 552 were reported as cured, 2009 as relieved, and 180 as not improved. There are district hospitals maintained by the Government at Tobago, Arima, St. Joseph, Tacarigua, Couva, Princes Town, and Cedros: there are also temporary hospitals, available when required, at Chaguanas, Sangre Grande, and Mayaro. There are two hospitals specially devoted to the treatment of persons suffering from yaws in Trinidad and Tobago. In connexion with this disease extraordinarily good results were obtained at the St. Augustine Yaws Hospital by Dr. H. M. Alston and Mr. W. F. Cleaver by the use of salvarsan. Out of 500 cases injected in 1911, 498 were cured, 409 with one injection, 75 after two injections, and 14 after three injections. The Leper Asylum, situate at Cocorite, near Port-of-Spain, contained 285 inmates at the close of the year. There had been 90 admissions during the year, 40 discharges, and 38 deaths.

The mean rainfall for the Colony of Trinidad and Tobago for the year 1911, compiled from observations taken at 85 stations, was 62·44 inches, as compared with 82·65 inches in 1910 (an exceptionally wet year). The mean maximum temperature for the year at the St. Clair experiment station, Port-of-Spain, was 86·1, and the mean minimum temperature 68·5°. The climate of Trinidad is not unhealthy for a tropical colony situated so near the Equator. From January to April the heat during the day is not excessive; the nights are cool, and occasionally even chilly, during the whole year. Europeans who take reasonable care of themselves enjoy excellent health in almost every part of the colony. In a few malarial spots special care is necessary to avoid contracting fever, but these places are well known and are limited in extent.

SHORT SEA TRIPS FOR EARLY HOLIDAYS.

THOSE who find it necessary or desirable to take a holiday early in the year—and their number seems to be increasing—may be recommended to consider the 15-day sea trips to Gibraltar and the Mediterranean which the Orient Line has organised. In this way a pleasant "change" can be obtained at this season of the year, and a brief visit to Spain or the Riviera is well worth making. The man of modest means will find the second saloon accommodation quite good as well as extraordinarily cheap.

A NEW SPANISH MEDICAL JOURNAL.

A NEW medical monthly has just made its appearance in Valencia under the title *Policlínica*. This first number contains original articles on Tuberculosis in Children and its Treatment by Immunising Bodies (Spengler's method), by Dr. D. Aguilar Jordan; Pericardial and Perihepatic Symphysis, with coloured illustrations, by Dr. Pastor Reig; and on Physiological Regeneration of the Blood in Anæmia, by Dr. Fillol. Also a considerable number of synopses of articles in foreign medical journals.

A MEDICAL OFFICER OF HEALTH FOR EAST LONDON, SOUTH AFRICA.

WITH regard to this appointment, applications for which are invited in our advertisement columns, we have received a letter asking intending applicants to communicate with Dr. J. Tremble, secretary of the Border branch of the British Medical Association, at Frere Hospital, East London.

THE UNIVERSAL ESPERANTO MEDICAL ASSOCIATION.

Mr. G. Jameson Johnston, professor of surgery in the School of the Royal College of Surgeons of Ireland, has been elected President of the Universal Esperanto Medical Association in succession to the late Professor Dor, of Lyons.

S. J. R.—There is no alcohol in the coffee-berry, and even if small quantities were present, contingent on fermentation of sugar, they would be entirely dissipated in the roasting process, the temperature being high enough to convert all sugar into caramel. At various times coffee was forbidden as an "intoxicating" beverage in Mahometan countries, but the toxic effects which strong infusions are capable of producing are not due to alcohol.

German.—The position in this and all analogous matters will have to be decided by Insurance Committees, who quite conceivably may take different views in different districts.

Tropics.—The current edition of the British Pharmacopœia was published in 1898.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced:—

March 1st (University of London).—Eugenics Education Conference.
,, 17th–20th (Paris).—International Congress of Physical Education.
(Easter week) (Berlin).—Fourth International Congress for Physiotherapy.
March 25th (Berlin).—Twelfth Congress of the German Association for Orthopædic Surgery.
,, 26th–29th (Berlin).—Forty-second Congress of the German Surgical Association.
,, 29th and 30th (Berlin).—Ninth Congress of the German Roentgen Society.
April 3rd–9th (London).—International Congress of Historical Studies.
,, 6th–12th.—Health Week.
,, 22nd–25th (London, Horticultural Hall).—Nursing Conference and Exhibition.
,, 28th (Ghent) (opens).—International Exhibition.
May 14th–18th (Paris).—Twenty-first Annual Congress of the Royal Institute of Public Health.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Mr. C. F. Jenkin and Mr. D. R. Pye: The Thermal Properties of Carbonic Acid at Low Temperatures (communicated by Sir J. A. Ewing).—Mr. E. Roberts: Re-reductions of Dover Tidal Observations, 1883-1884 (communicated by Lord Rayleigh, O.M.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY.

SECTION OF ODONTOLOGY (Hon. Secretaries—Stanley P. Mummery, Robert McKay): at 8 P.M.

Mr. G. H. Berwick: Restoration after Surgical Operations.

Casual Communications:

Mr. A. E. Ironside: Hypertrophy of Gums in Child. Patient Present.

Mr. L. Stanley Kettlewell: Fibroma of Maxilla.

Mr. H. J. Relph: Odontome.

Mr. F. J. Smyth: Misplaced Mandibular Canine.

TUESDAY.

SECTION OF MEDICINE (Hon. Secretaries—Robert Hutchison, H. Batty Shaw): at 5.30 P.M.

Papers:

Dr. F. Parkes Weber: The Prognostic Significance of Secondary Polycythæmia in Cardio-pulmonary Cases.

Dr. Gordon R. Ward: Some Cases of Polycythæmia.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—H. S. Clogg, F. Langmead, P. N. Blake-Odgers): at 4.30 P.M.

Cases:

Dr. F. Parkes Weber: Flexion and Ulnar Deflection of the Fingers.

Dr. F. G. Crookshank: Mongoloid Child of European Descent.

Mr. J. E. Adams: Two Cases in same Family of Congenital Coalescence of Radius and Ulna.

Mr. Douglas Drew: (1) Plastic Operation for Contraction after Burn of the Hand; (2) Plating for Separation of Lower Epiphysis of Femur, done 3 Years Ago, Plate not removed; (3) Large Lymphangioma removed from an Infant of 9 Months.

Mr. E. M. Corner: (1) Costo-transversectomy, done 3½ Years ago; (2) Congenital Absence of Fibula.

Dr. E. Cautley: Chronic Albuminuria with Hepatic Enlargement.

Paper:

Dr. H. Charles Cameron: Summer Diarrhœa and Summer Heat.

SECTION OF EPIDEMIOLOGY (Hon. Secretaries—G. S. Buchanan, William Butler): at 8.30 P.M.

Papers:

Dr. William Butler: Measles.

Mr. B. Glanville Corney, I.S.O.: A Note on an Epidemic of Measles at Rotumá, 1911.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Mr. Ralph Thompson: Unilateral Renal Lesions, to be followed by Mr. T. Walker and others.—Dr. O. Kauffmann: Some Experiments on the Urinary Excretion of Potassium Iodide and their Clinical Significance.

HUNTERIAN SOCIETY, London Hospital, Mile End-road, E.

WEDNESDAY.—4 P.M., Clinical Afternoon.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—8 P.M., Mr. H. J. Wilson: The Education and Employment of the Blind.

CHILD STUDY SOCIETY, LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—7.30 P.M., Dr. A. Wilson: Development of the Child's Brain (illustrated by lantern slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. A. J. Jex-Blake: Death by Lightning and Electric Currents. (Goulstonian Lectures.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, WEDNESDAY, AND FRIDAY.—5 P.M., Prof. A. Keith: The Upright Posture, its Evolution and Diseases. (Hunterian Lectures.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Mr. V. Z. Cope: Abdominal Injuries.

TUESDAY.—4 P.M., Dr. J. Parkinson: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. Routh: Late Puerperal Complications.

WEDNESDAY.—4 P.M., Mr. G. E. Waugh: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. A. F. Tredgold: Acquired Mental Defect.

THURSDAY.—4 P.M., Dr. R. H. Miller: Clinique (Medical). 5.15 P.M., Lecture:—Mr. A. Edmunds: Deformities of the Penis and their Treatment.

FRIDAY.—4 P.M., Dr. D. McKenzie: Clinique (Ear, Nose, and Throat). 5.15 P.M., Dr. W. Wingrave: The Tonsils.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Armour: Operations for Hernia.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: Clinical (Urinary Surgery).

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Lecture:—Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Owen: Granular Kidney.

THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Ll. Williams: The Mouth as a Source of Infection, Local and General.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Lecture:—Dr. Owen: Demonstration at Victoria Park Hospital. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Disease.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Lecture:—Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. Dr. A. Davies: Pathological Demonstration. 3.15 P.M., Dr. R. Wells: Medicine.

FRIDAY.—Out-patient Demonstrations;—10 A.M., Dr. G. Holmes: Medical. Mr. A. J. Walton: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Mr. P. Cole: Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—10 A.M., Dr. W. Steuart: Radiography.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. E. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. H. W. Carson: Some Conditions Simulating Appendicitis.

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld): Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 4.30 P.M., Lecture:—Mr. R. P. Brooks: Chronic Glaucoma and the New Operations for its Cure.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4.30 P.M., Dr. Melville: The Aid of Radiography in the Diagnosis of Intra-thoracic New Formations.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.

Course of Lecture-Demonstrations on Diseases of the Chest, with Special Reference to Tuberculosis (including a Tuberculin Course):—

MONDAY.—4.30 P.M., Dr. W. H. White.

THURSDAY.—4.30 P.M., Dr. Calvert.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Stewart: Treatment of Motor Paralysis.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Stewart: Treatment of Ataxia.

CANCER HOSPITAL, Museum of the Hospital, Fulham-road, S.W.

WEDNESDAY.—5 P.M., Mr. C. Rowntree: The Treatment of Inoperable Cancer (illustrated by cases and microscopic and other specimens).

LISTER INSTITUTE OF PREVENTIVE MEDICINE, Chelsea Bridge-road, S.W.

TUESDAY.—5 P.M., Dr. J. H. Smith: Serum-fast Bacteria.
THURSDAY.—5 P.M., Dr. H. Maclean: Lipoids.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—2 P.M., Dr. W. Griffith: The Pathology of the Skin.
THURSDAY.—6 P.M., Dr. M. Dockrell: The Solution of the Confusion between Pityriasis Rubra Pilaris and Lichen, and the Treatment of each.

UNIVERSITY OF LONDON (KING'S COLLEGE), Physiological Laboratory, King's College, London, W.C.

MONDAY.—4.30 P.M., Dr. O. Rosenheim: Recent Advances in Chemical Physiology and Pathology.

UNIVERSITY OF LONDON (UNIVERSITY COLLEGE), The Francis Galton Laboratory for National Eugenics.

TUESDAY.—8 P.M., Lecture:—Miss E. M. Elderton: The Relation of Fertility in Man to Social Value in the Parent.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), London Hospital, Mile End-road, E.

Course of Lectures and Demonstration on Neurology (illustrated with Clinical Cases):—
MONDAY.—4.30 P.M., Dr. T. Thompson: Polyneuritis.
TUESDAY.—4.30 P.M., Dr. Turnbull: Tract Degenerations of the Spinal Cord.
WEDNESDAY.—4.30 P.M., Dr. G. Holmes: Cerebellum and its Connexions.
FRIDAY.—4.30 P.M., Dr. H. Head: Dementia Paralytica and Taboparesis.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

FRIDAY.—9 P.M., Prof. the Hon. R. J. Strutt: Active Nitrogen.
SATURDAY.—3 P.M., Prof. Sir J. J. Thomson, O.M.: The Properties and Constitution of the Atom. (Lecture IV.)

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. D. E. Core: Mitral Stenosis. (Post-Graduate Clinic.)

MANCHESTER ROYAL INFIRMARY.

TUESDAY.—4.30 P.M., Dr. Donald: Abdominal Radical Operation for Carcinoma of the Cervix Uteri. (Post-Graduate Clinic.)
FRIDAY.—4.30 P.M., Mr. P. R. Wrigley: Surgical Demonstration. (Post-Graduate Clinic.)

BIRMINGHAM GENERAL HOSPITAL.

TUESDAY.—3.30 P.M., Mr. S. Barling: Demonstration of Surgical Cases in Children. (Post-Graduate Clinic.)

QUEEN'S HOSPITAL, Birmingham.

FRIDAY.—3.30 P.M., Dr. D. Stanley: Indications for Treatment in Phthisis. (Post-Graduate Clinic.)

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.

MONDAY.—10 A.M., Obstetrical Lecture: Puerperal Sepsis (continued). 11 A.M., Examination of Patients and Minor Operations.
TUESDAY.—10 A.M., Major Operations. 4 P.M., Class in Gynæcological Diagnosis.
WEDNESDAY.—10 A.M., Obstetrical Lecture: Post-partum Hæmorrhage. 11 A.M., Examination of Patients and Minor Operations.
THURSDAY.—10 A.M., Major Operations.
FRIDAY.—10 A.M., Gynæcological Lecture: The Operative Treatment of Uterine Prolapse. 11 A.M., Examination of Patients and Minor Operations. 4 P.M., Class in Gynæcological Diagnosis.

For further particulars of the above Lectures, &c., see Advertisement Pages.

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 19th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb 13	30·57	S.W.	...	49	43	37	38	38	Foggy
,, 14	30·44	N.E.	...	45	41	34	36	36	Foggy
,, 15	30·28	S.W.	...	41	41	36	38	39	Overcast
,, 16	30·25	N.E.	...	72	46	35	36	37	Cloudy
,, 17	30·24	N.E.	0·07	53	44	36	37	39	Overcast
,, 18	30·17	N.E.	...	63	39	33	32	33	Cloudy
,, 19	30·16	N.E.	...	56	38	31	—	32	Cloudy

The following journals, magazines, &c., have been received:—Symons's Meteorological Magazine, Bulletin of the Johns Hopkins Hospital, St. Paul Medical Journal, American Medicine, American Journal of Obstetrics, North of England Clinical Journal, Canadian Journal of Medicine and Surgery, International Journal of Surgery, Architectural Review, Liverpool Medico-Chirurgical Journal, Maryland Medical Journal, Albany Medical Annals, British Journal of Children's Diseases, Revue de Chirurgie, Revue de Médecine, Clinique Ophthalmologique, Clinical Medicine, Transactions of the Glasgow Obstetrical and Gynæcological Society, Tropical Diseases Bulletin, Annali di Medicina Navale e Coloniale.

Communications, Letters, &c., have been received from—

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